



The Taxonomic Report

OF THE INTERNATIONAL LEPIDOPTERA SURVEY



A Concise Update of the Information Provided in ***THE BUTTERFLIES OF SOUTHERN CALIFORNIA (1973)***

by Thomas C. Emmel and John F. Emmel

Ken Davenport¹

6601 Eucalyptus Dr. #325
Bakersfield, California 93306

This paper's purpose is to bring together in one resource a concise, but thorough, report on the current status of butterflies discussed in the *Butterflies of Southern California* by Thomas C. Emmel and John F. Emmel, published by the Natural History Museum of Los Angeles County, 1973. This update deals primarily with new species or subspecies, taxonomic matters, and new distributional information. The family order follows *A Catalogue / Checklist of the Butterflies of America North of Mexico* by Clifford D. Ferris, editor, published by the Lepidopterists' Society as Memoir No. 3, 1989. Species order follows the Emmel, Emmel & Mattoon checklist for California in *Systematics of Western North American Butterflies*, Thomas C. Emmel, editor, Mariposa Press Gainesville, Florida (pgs. 825-836), 1998. The area delimited as southern California here is the same as in *The Butterflies of Southern California*, except that all of San Luis Obispo County is included. Readers will need to research several publications to read these changes since 1973.

The primary resources from which this updated information is drawn are: annual Season Summary reports published in the *News of the Lepidopterists' Society*, various scientific journals (including *Journal of the Lepidopterists' Society*, *Bulletin of the Allyn Museum* and *Journal of Research on the Lepidoptera*) and articles and information reported by various researchers and observers. Much such information is found in the *Systematics* publication. In *Systematics*, there are 73 chapters written by a number of authors, with many of the chapters including information on the southern California fauna. Information for Kern County is found in *Butterflies of North America 3. Butterflies of Kern and Tulare Counties, California* by Ken Davenport, published as a contribution of the C. P. Gillette Museum of Arthropod Diversity, Colorado State University.

FAMILY HESPERIIDAE (SKIPPERS)

Subfamily Megathymidae:

YUCCA GIANT SKIPPER *Megathymus yuccae harbisoni* J. Emmel & T. Emmel.

Update: *M. coloradensis* is now considered conspecific with *M. yuccae*. The new subspecies *harbisoni* was described in the SYSTEMATICS publication. Subspecies *martini* is now known to occur in the southern Sierra Nevada of Kern County.

MOJAVE GIANT SKIPPER *Agathymus alliae paiute* Roever.

Update: Also known as ALLIE'S GIANT SKIPPER. The name *paiute* was applied in 1998 by Kilian Roever (SYSTEMATICS book). Emmel & Emmel had stated California populations would be named by Roever back in 1973.

GENTRY'S GIANT SKIPPER *Agathymus gentryi* Roever.

Update: Southern California populations were previously known as BAUER'S GIANT SKIPPER (*Agathymus baueri*) in Emmel and Emmel. BAUER'S GIANT SKIPPER is now considered a species ranging from the Phoenix area into northern Arizona (some western Arizona populations are *gentryi*). Others including NABA view all of these as ARIZONA or ARYXNA GIANT SKIPPER (*Agathymus aryxna*). See SYSTEMATICS book and Roever's paper.

¹ Staff Researcher, The International Lepidoptera Survey. Field Associate of Entomology, Natural History Museum of Los Angeles County. Museum Associate, Colorado State Museum at Colorado State University. E-mail address: kdavenport@tils-ttr.org

Subfamily Hesperinae:

FIERY SKIPPER *Hylephila phyleus muertovalle* Scott.

Update: New subspecies described by James A. Scott in Papilio #1 in 1981.

ALKALI SKIPPER *Pseudocopaeodes eunus* (W. H. Edwards).

Update: Several new subspecies have been described including *flavus* Austin & J. Emmel (Inyo and Kern Cos), and *alineae* Scott (San Bernardino County). Significant populations were discovered at Weldon and Onyx in Kern County in 1981 by Ron Leuschener and Ken Davenport. Formerly known as THE EUNUS SKIPPER., this new vernacular name is better.

WESTERN BRANDED SKIPPER *Hesperia colorado* (Scudder) complex:

Update: Known as the HARPALUS SKIPPER (*Hesperia harpalus* (Edwards)) in Emmel & Emmel and the COMMON BRANDED SKIPPER (*Hesperia comma* (Linn.)) by many others. The *colorado* vs. *comma* taxonomic issue is under study and not resolved here. The name *yosemite* Leussler in Emmel & Emmel probably does not apply to Kern County material. This is a fall flying entity closely allied with *tildeni*. The name *harpalus* now applies to what was called *yosemite*. What was called *harpalus* is now called *idaho* W. H. Edwards. The blend zone population is the fall flying entity. Add subspecies *tildeni* H. A. Freeman to the southern California fauna, it occurs sparingly in the Temblor Range of Kern and San Luis Obispo Counties.

COLUMBIA SKIPPER *Hesperia columbia* (Scudder)

Update: No name changes but is now well known from Mt. Pinos region and southern Sierra Nevada. See annual Season Summary records and Davenport's Kern/Tulare County publication (2003).

LINDSEY'S SKIPPER *Hesperia lindseyi* (Holland). Southern California segregate.

Update: Several new subspecies have been described (see SYSTEMATICS book). Ours are a different phenotype than Coast Range nominotypical *lindseyi* (fide John F. Emmel, recent personal communication).

SANDHILL SKIPPER *Polites sabuleti channelensis* Emmel and Emmel.

Update: New subspecies *channelensis* was described from the Channel Islands, Los Angeles County.

SACHEM or FIELD SKIPPER *Atalopedes campestris campestris* (Boisduval).

Update: Southern California populations are the nominotypical subspecies.

YUMA SKIPPER *Ochlodes yuma yuma* (W. H. Edwards).

Update: Two new subspecies have been described. Known from only Inyo County for the southern half of the state in 1973. Roever has taken it along the Colorado River near the Needles area in San Bernardino County since then. The taxon in the region of this paper is the nominotypical subspecies.

WOODLAND SKIPPER *Ochlodes sylvanoides catalina* Emmel & Emmel.

Update: New subspecies *catalina* was described from Santa Catalina Island, Los Angeles County.

VERUS SKIPPER *Ochlodes agricola verus* (W. H. Edwards).

Update: Now known to be fairly common in the Piutes and Kelso Valley region, Kern County. Populations were rediscovered by John Pasko and Ken Davenport in 1978.

DUN SKIPPER *Euphyes vestris harbisoni* (McGuire & Brown).

Update: Southern California populations have been named *harbisoni*.

BRAZILIAN SKIPPER *Calpodus ethlius* (Stoll).

Update: There have been a few additional records reported in the Season Summaries for the state.

Subfamily Pyrginae:

SILVER-SPOTTED SKIPPER *Epargyreus clarus californicus* MacNeill.

Update: California populations named in Howe (1975). Distribution extends beyond San Bernardino Mountains in several counties. It recently extended its range into the Greenhorn Mountains of Kern County following 1990 forest fire (2000). It also occurs on Hi Mountain and elsewhere in SLO County.

PLAIN LONGTAIL *Urbanus simplicius* (Stoll).

Update: J. W. Tilden reared this and published the record in the *Journal of Research on the Lepidoptera* (1976) 15:1 pg. 40.

NORTHERN CLOUDYWING *Thorybes pylades indistinctus* Austin & J. Emmel.

Update: Subspecies *indistinctus* was described in the 1998 SYSTEMATICS book.

ARIZONA POWDERED SKIPPER *Systasea zampa* (W. H. Edwards).

Update: Previously known as the POWDERED SKIPPER (*Systasea evansi* (Bell)). Now known to occur in the Providence Mtns. in San Bernardino County. Richard P. Meyer and Ken Davenport have records prior to this becoming a National Preserve.

MOURNFUL DUSKYWING *Erynnis tristis tristis* (Boisduval).

Update: Now known to be resident in southern San Joaquin Valley. Ken Davenport has collected it there regularly since 1961. The Emmels did not know this and Davenport did not know the Emmels when they researched the book.

PACUVIUS DUSKYWING (DYAR'S DUSKYWING) *Erynnis pacuvius lilius* (Dyar).

Update: DYAR'S DUSKYWING was added to the Southern California fauna (first collected 1978, determined by Burns in 1980) by Ken Davenport with records from Piute and Greenhorn Mountains (Sunday Peak region) and southern edge of Kern Plateau, confirmed by John Burns. Common but local resident in Kern County Sierra Nevada.

PERSIUS DUSKYWING *Erynnis persius* (Scudder).

Update: Emmel, Emmel & Mattoon (1998) in SYSTEMATICS checklist referred to these as "near *fredericki* H. A. Freeman". There are very few records of this species in the region with one record for Ventura County and a few for Kern County (Jerry Powell for Delano, Greenhorn Mtns. by Davenport). John Burns does not support putting subspecies names to this species without a major examination of all the continent's populations and a major revisionary work (pers. comm. in March, 2004)

LAGUNA MOUNTAINS CHECKERED SKIPPER *Pyrgus ruralis lagunae* Scott.

Update: The LAGUNA MOUNTAINS CHECKERED SKIPPER was recently described. Emmel & Emmel speculated the nominotypical *Pyrgus ruralis ruralis* (Boisduval) may occur in the Greenhorn Mountains back in 1973. There are still no known records from there though conditions would appear favorable for it to occur.

SMALL CHECKERED SKIPPER *Pyrgus scriptura apertorum* Austin.

Update: Nominotypical *scriptura* was rediscovered in Kern County in the west side of the San Joaquin Valley (Buttonwillow and Lost Hills region in 1980 Season Summary) and there were overlooked old records for the 1930's in Kern County. Mojave Desert populations were described as this new subspecies.

COMMON CHECKERED SKIPPER *Pyrgus communis* (Grote).

Update: It was believed all southern California CHECKERED SKIPPERS were *Pyrgus albescens* Plötz. But Burns identified some southern California records for *P. communis*. J. F. Emmel determined all known SLO County records in this complex as *P. communis*. J. F. Emmel and Julian Donahue (Season Summaries) determined some Kern County material (Temblor Range and Delano area) as *P. communis*. Both *communis* and *albescens* co-occur along Hwy. 43 at the Kern/Tulare County line.

STREAKY SKIPPER *Celotes nesus* (W. H. Edwards).

Update: Ken Davenport observed what appeared to be *nesus* flying in a wash on the California side of the Colorado River (San Bernardino Co.) near the bridge across from Topock, Mohave Co., Arizona on May 27, 1973. It occurs sparingly in the Kingman area and Hualapai Mtns. (Mohave Co., Arizona) about 50 miles east of the California line. Needs Confirmation.

MOJAVE SOOTYWING *Hesperopsis libya joaquina* Emmel, Emmel & Mattoon.

Update: Previously in the genus *Pholisora*. This population was discussed by Emmel & Emmel in 1973 and named in the SYSTEMATICS book in 1998. This subspecies occurs from Oildale area west to McKittrick and Temblor Range (all Kern County) and extreme eastern SLO County off Hwy. 166.

SALTBUSH SOOTYWING *Hesperopsis alpheus oricus* (W. H. Edwards).

Update: Recent collecting (Ken Davenport) has shown this species occurs commonly in a lower canyon at Butterbrecht Peak and in the Bird Spring Pass area in the arid southern Sierra Nevada (See Season Summary reports). Previously in *Pholisora*.

GENERAL SKIPPER UPDATES.

A number of species not considered are now placed in different genera as follows:

UMBER SKIPPER *Paratrytone melane* now *Poanes melane melane*.

CARUS SKIPPER *Yretta carus* now *Polites carus*.

MOJAVE SOOTYWING *Pholisora libya* now *Hesperopsis libya*.

MACNEILL'S SOOTYWING *Pholisora graciellae* now *Hesperopsis graciellae*

FAMILY PAPILIONIDAE (SWALLOWTAILS and PARNASSIANS)

Subfamily Papilioninae.

CALIFORNIA PIPEVINE SWALLOWTAIL *Battus philenor hirsuta* (Skinner).

Update: There is a strong possibility that two males collected in See Canyon in San Luis Obispo County June 23, 1981 by Richard Skalski represent *hirsuta* and not nominotypical *philenor*. There are other reported specimens of *philenor* from that county in the Clemence collection, now in the LACM.

BAIRD'S SWALLOWTAIL *Papilio bairdii bairdii* W. H. Edwards

Update: Some consider *bairdii* to be a subspecies of *P. machaon* but others do not. This continues to be one of the states rarer butterflies. A record of form "*brucei*" from Erskine Creek Canyon east of Lake Isabella, Kern County May 20, 2001 by Ken Davenport may be a very atypical *P. polyxenes coloro*. *P. polyxenes coloro* was also taken at that locality that same day and several days after that. John F. Emmel states (pers. comm.) that the record needs confirmation by collecting a black individual.

BLACK SWALLOWTAIL *Papilio polyxenes asterius* Stoll.

Update: A single very black female that appears to represent *asterius* and not *coloro* form "*clarki*" was collected along the Colorado River at Needles, San Bernardino County on 26 May 1973 by Ken Davenport. Based on a close examination of the specimen, it does not appear to be a form *clarki*. The yellow banding has considerable orange and the specimen is quite large, *coloro* tends to be smaller. This determination is likely to be controversial since some view *asterius* and *coloro* as conspecific.

DESERT SWALLOWTAIL (or DESERT BLACK SWALLOWTAIL) *Papilio (polyxenes) coloro* W. G. Wright.

Update: Previously, RUDKIN'S SWALLOWTAIL (= *Papilio rudkini*), now a synonym of *coloro*. In *Bulletin of Allyn Museum* #76 published (1982), Ferris and J. F. Emmel discussed name changes and placement of *coloro* as a subspecies of *P. polyxenes*.

Many still consider this taxon a species based on phenotype and habitat differences with *P. p. asterius* in southeast Arizona. It is believed the southeast Arizona area is not a tension zone between *coloro* and *asterius* – it being *asterius* that flies there. Similar yellow populations occur in Texas within the range of *P. p. asterius*. It is now known that *coloro* is an uncommon breeding resident in the southern Sierra Nevada where it often shares habitats and larval hosts with *P. indra phyllisae*.

INDRA SWALLOWTAIL *Papilio indra* Reakirt.

Update: Several new subspecies have been described:

1). **PHYLLIS'S SWALLOWTAIL** *Papilio indra phyllisae* J. Emmel.

Described in *Journal of Lepidopterists' Society* in 1981. Occurs in arid Sierra Nevada of Kern County, Type Locality Butterbrecht Peak and vicinity. Perhaps the most highly sought butterfly in southern California. Records are also known from E. side of Piutes including Piute Mtn., E. side of Greenhorn Mtns., Bird Spring Pass in Kern County, Nine Mile Canyon (Inyo County) north to Bald Mtn. in Tulare County.

2). **LIMESTONE DWELLING SWALLOWTAIL** *Papilio indra calcicola* J. F. Emmel & B. M. Griffin.

Barely enters southern California in desert mountains of eastern Death Valley area, Inyo County. See SYSTEMATICS publication for this and next subspecies.

3). **PYGMY INDRA SWALLOWTAIL** *Papilio indra pygmaeus* Emmel, Emmel & Griffin.

Described from Dead Mountains in San Bernardino County north of Needles. Very limited range.

4). **PANAMINT MOUNTAIN SWALLOWTAIL** *Papilio indra panamintensis* J. Emmel.

Update: A distinctive blackish subspecies with reduced yellow bands described in the *Journal of the Lepidopterists' Society*, Vol. 35(4), 1981. It occurs in the Panamint Mountains of Death Valley region.

GIANT SWALLOWTAIL *Papilio cresphontes* Cramer.

Update: Has extended range since 1973, now occurs as resident in San Diego, Riverside, Orange and Los Angeles Cos. Had been known only from Imperial County as a resident.

SMALLER TWO-TAILED SWALLOWTAIL *Papilio multicaudatus pusillus* Austin & J. Emmel.

Update: Described in SYSTEMATICS, California populations are smaller than nominate *multicaudatus* in Arizona and Texas.

Subfamily Parnassiinae.

CLODIUS PARNASSIAN *Parnassius clodius baldur* W. H. Edwards.

Update: Strays have been seen at Lake Isabella Dam and near Tiger Flat in Greenhorn Mountains of Kern County but there are no captures recorded for southern California. Possible colonies may exist in Kern County. A colony in the Greenhorn Mountains was located in the Greenhorn Mountains just north of the Kern/Tulare County line on Baker Ridge in 1995 by Ken Davenport. Strays southward would be expected.

FAMILY PIERIDAE (WHITES, MARBLES and ORANGE-TIPS and SULPHURS)

Subfamily Pierinae:

TEHACHAPI PINE WHITE *Neophasia menapia tehachapina* J. Emmel, T. Emmel & Mattoon.

Update: Described from the Tehachapi Mountains in the 1998 SYSTEMATICS publication. Speculation that this population is extirpated is incorrect, it is uncommonly seen. Nominotypical *menapia* occurs in the Greenhorn Mountains, Kern County.

SPRING WHITE *Pontia sisymbrii nigravenosa* Austin & J. Emmel.

Update: Previously known as the CALIFORNIA WHITE and placed in *Pieris*, now in *Pontia*. This newly described subspecies (see SYSTEMATICS publication) occurs in the mountain ranges of the eastern Mojave Desert northward into the White Mountains of Inyo County. Material from the western portion of the state continues to be nominotypical *sisymbrii*.

LARGE VEINED WHITE *Pieris marginalis venosa* Scudder.

Update: Long considered a subspecies of *Pieris napi* (Linn.), others believe *venosa* may warrant species status. Emmel & Emmel (1973) noted this butterfly occurred in Lopez Canyon, SLO County but did not write up this butterfly as a full species occurring in southern California. Ken Davenport verified the modern Lopez Canyon records in 1978 and found the light second brood occurred there as well in May (at least in 1978). He also found new populations at Navajo Camp (eastern SLO County), Cerro Alto Camp (between Atascadero and Morro Bay), See Canyon and Perfumo Canyon. Bill Bouton has found it at Montana DeOro State Park and Jim Royer reports it from Los Osos. It is definitely in southern California. Most of these records are published in annual Season Summary reports.

Subfamily Anthocharinae:

LARGE MARBLE *Euchloe ausonides ausonides* (Lucas).

Update: A new subspecies was described from the Sierra Nevada in the SYSTEMATICS publication. Populations from the coastal California and the northern San Joaquin Valley are the larger nominotypical subspecies. Emmel & Emmel speculated that the species might reach southern California in the Greenhorn Mountains. The only capture in southern California to date

was a male taken near Cholame, San Luis Obispo County on March 29, 1996 (Ken Davenport and Ken Hansen). I have seen two others in that same region but failed to net them.

PEARLY MARBLE (or CALIFORNIA MARBLE) *Euchloe hyantis* (W. H. Edwards).

Update: This group is under study by Paul Opler. Emmel & Emmel and others have long viewed the DESERT MARBLE (*lotta*) as a subspecies of *hyantis* and listed other segregates under *lotta* including the "Mt. Pinos" block and the Peninsular Ranges segregate. Emmel & Emmel also mentioned a near *lotta* population in the San Bernardino Mountains. Probably all three of those populations are closer to *hyantis* than *lotta* (which Opler (1999) and Opler and Warren (2002) list as a separate species). The *hyantis* I have taken above 8000' in the San Bernardino Mountains, show reduced green marbling on the HW below and are very similar to Sierra Nevada *hyantis* taken in Upper Kern Canyon in Tulare County. This may be among the strongest evidence, in my view, that more than one species are in what has been called *hyantis*. James A. Scott believes *andrewsi* may be a subspecies of the LARGE MARBLE.

DESERT MARBLE *Euchloe (hyantis) lotta* Beutenmuller.

Update: As mentioned above, this butterfly may merit species status based on habitat and host plant differences and other reasons. Both *hyantis* and *lotta* occur together on the Kern Plateau just barely north of the Kern/Tulare County line. The field mark characters do not hold true there. But the two entities (*hyantis* from the Greenhorns and Kern Canyon in Tulare County) appear very distinct from *lotta* in the Deserts and arid Sierra Nevada. Individuals of *hyantis* or *lotta* from the Kern Plateau on Bald Mountain at 9400' often show a broad black bar at the end of the cell on the FW above. The two Tulare County *hyantis* populations these represent may be two different species as well. While many presume marbles flying in the deserts of Anza Borrego State Park and Scissors Crossing in San Diego County are DESERT MARBLES. Paul Opler (pers. comm.) states these are PEARLY or CALIFORNIA MARBLES (*Euchloe hyantis*).

DESERT ORANGE-TIP (=FELDER'S ORANGE-TIP) *Anthocharis cethura* C. & R. Felder.

Update: Several new subspecies have been recognized or described since 1973.

1) The name *morrisoni* W. H. Edwards was viewed as the name of a form in 1973, it is now recognized as a full subspecies occurring in the southern Sierra Nevada (Lake Isabella north into Tulare County in Kern Canyon) and on the west side of the San Joaquin Valley. Females rarely show light yellow scaling on the apex of the FW but most are white form "*deserti*" which resemble members of the *Euchloe hyantis/lotta* complex.

2) The name *hadromarmorata* described by J. Emmel, T. Emmel & Mattoon best applies to material from Inyo County but material from Red Rock Canyon and vicinity in Kern County is near *hadromarmorata*. Populations from the eastern Mojave Desert were all known as the PIMA ORANGE-TIP (*A. cethura pima* or as a species *Anthocharis pima*) but most of these are now considered subspecies *mojavensis* J. Emmel, T. Emmel & Mattoon. True *pima* occurs in parts of southern California: see the SYSTEMATICS book for details.

3) Emmel & Emmel suggested that subspecies *catalina* Meadows may be extinct. Recent captures and observations on Santa Catalina Island have shown it is still there.

SARA ORANGETIP (=PACIFIC ORANGE-TIP) *Anthocharis sara sara* Lucas.

Update: What was viewed as a widespread species in the western United States has been split into several species. DNA work and collecting data appear to support recognizing the STELLA ORANGE-TIP (*Anthocharis stella* W. H. Edwards) as a full species. Not so clear is the taxonomic status of the THOOSA or SOUTHWESTERN ORANGE-TIP (*Anthocharis "sara" thoosa*). Reports of STELLA ORANGE-TIPS in southern California are incorrect. Yellow *sara* in southern California may resemble STELLA ORANGE-TIPS as a color form but are not the same biological butterfly as *Anthocharis stella* and were not even when *stella* was viewed as a subspecies from high elevations in the Sierra Nevada.

SOUTHWESTERN ORANGE-TIP (=THOOSA ORANGE-TIP). *Anthocharis thoosa thoosa* (Scudder).

Update: See comments above. Viewed by many as a subspecies of *sara*. Support for viewing these as separate species needs to be supported by a published scientific paper. Treated as a species by Opler (1999) and Opler & Warren (2002). This is the orange-tip occurring in the eastern Mojave Desert mountain ranges. Data from the east side of the Sierra Nevada indicates *A. thoosa pseudothoosa* Austin and *stella* overlap ranges there. More study is needed.

GRAY MARBLE *Anthocharis lanceolata* (Lucas).

Update: Also known as the LANCEOLATE MARBLE and BOISDUVAL'S MARBLE. Emmel & Emmel viewed all southern California populations as GRINNELL'S MARBLE (subspecies *australis* (Grinnell)). However most Kern County populations in the southern Sierra, Greenhorns and Piutes are Sierra Nevada subspecies *Anthocharis lanceolata lanceolata* (Lucas). Subspecies *australis* does occur in Kern County in the Frazier Park region... Kern Canyon Miracle Hot Springs population in Kern County and Nine Mile Canyon, Inyo County population may be an intermediate *australis* X *lanceolata* blend zone. Another subspecies from the western edge of the Colorado Desert was described as *desertolimbus* J. Emmel, T. Emmel & Mattoon (see the SYSTEMATICS publication).

Subfamily Coliadinae.

CLOUDLESS SULPHUR *Phoebis sennae marcellina* (Cramer).

Update: Established large breeding populations in Mojave Desert of Kern County in Cinco-Cantil region in 1983-84 and 1992.

ORANGE-BARRED SULPHUR *Phoebis philea philea* (Hy. Edwards).

Update: Only a couple records of strays into southern California where it is not a member of the state's fauna. Based on the

ATLAS of WESTERN USA BUTTERFLIES by Ray Stanford and Paul Opler (1993), records exist for Riverside and extreme eastern San Bernardino County. Those interested in specific county distribution records should get that publication.

BARRED YELLOW *Eurema daira* (Godart).

Update: The only apparent California record is a dot in extreme eastern Imperial County (Stanford, Opler ATLAS). Not a regular member of the states fauna, occurs only as a rare stray.

BOISDUVAL'S YELLOW *Eurema boisduvaliana* (C. & R. Felder).

Update: One record in San Diego County (Stanford, Opler ATLAS). Not part of the states fauna, occurs only as a rare stray.

LITTLE YELLOW *Eurema lisa lisa*: (Boisduval & LeConte).

Update: There are records for San Diego, Riverside and San Bernardino Counties (see ATLAS publication). Some records are listed in the 1992 Season Summary: "many observed, five taken, Big Morongo Cyn., The Nature Conservancy Preserve, RIVERSIDE and SAN BERNARDINO COS. (Robert P. Allen). Date not given. John F. Emmel reported seeing what appeared to be a lisa along the Colorado River at Needles in April of 1992, a year of unusual rainfall in southern California and Baja California. Not a regular member of the states fauna, occurs only as a rare stray.

MIMOSA YELLOW *Eurema nise nelphe* (R. Felder).

Update: This was a rare vagrant to California in 1992 with this record in the annual Season Summary: Chemehuevi Mtns., San Bernardino Co., 18 April 1992 (John F. Emmel and Bruce Griffin) and Trabuco Canyon, Santa Ana Mountains Orange County 13 May 1992 (John F. Emmel). Not a regular member of the states fauna, occurs only as a rare stray.

LYSIDE YELLOW *Kricogonia lyside* (Godart).

Update: Besides Roever's Imperial County record in Emmel & Emmel (1973), Larry Orsak (Butterflies of Orange County) lists an old record for Orange County: Doheny Palisades 15 IX 35 by Charles Rudkin. A non resident rare stray.

FAMILY LYCAENIDAE (COPPERS, HAIRSTREAKS and BLUES)

Subfamily Lycaeninae.

GORGON COPPER *Lycaena gorgon micropunctata* J. Emmel & Pratt

Update: This newly described subspecies is actually common in the Kern River Valley and eastern Sierra Nevada as far south as the canyon on the south side of Butterbrecht Peak in Kern County. However it should be noted that populations on the east side of the Greenhorns, Piutes and Johnsondale/Sherman Pass region are closer to nominotypical *gorgon* (Boisduval) though many individuals resemble *micropunctata*. The best locality for it (*micropunctata*) is on the Chimney Peak Road on the upgrade to Lamont Peak (which is in Tulare County) in Kern County just south of the Tulare/Kern County line. It can be very abundant on the sandy slopes bordering the roads. The host plant (*Eriogonum nudum*) is visibly abundant there.

BRIGHT BLUE COPPER *Lycaena heteronea clara* (Boisduval)

Update: No changes in taxonomy other than various views on what genus to place this copper in. Many have been concerned about the long term survival of this copper because of human development having a notable negative impact on the population in the Frazier Park area of Kern County. It is a species of concern by conservation groups who are working to protect its habitat on the ridge route (Interstate 5 between Bakersfield and Los Angeles). However it should be noted that it may still exist in the Tehachapi area on private property and that other populations have been discovered on Piute Mountain Vista (Jim Brock), the Piute Mountain Road overlooking Lake Isabella south of Bodfish (Ken Davenport) and at the south end of the Kern Plateau near Pine Flat (Ken Davenport) in both Kern and Tulare Counties (See 2003 Season Summary). The butterfly does not appear endangered at present but efforts to protect remaining habitat for it in the Frazier Park region are fully supported – a suggestion made at a "Corridors" workshop to aid sensitive species threatened by loss of continuity of habitat lands.

GREAT COPPER *Lycaena xanthoides obsolescens* J. Emmel & Pratt.

Update: This newly described subspecies was described from Hunter Mountain in the desert areas (Death Valley National Park) of Inyo County. Similar populations occur in the Kern River Valley, Walker Pass and Kelso Valley region in eastern Kern County. See description in the SYSTEMATICS publication (1998).

Subfamily Theclinae.

GOLDEN HAIRSTREAK (= BOISDUVAL'S HAIRSTREAK) *Habrodais grunus* (Boisduval)

Update: The subspecies LORQUIN'S HAIRSTREAK (*Habrodais grunus lorquini* Field) is now known to occur in San Luis Obispo County in Lopez Canyon in June. Ken Davenport first collected a specimen there in June of 1978 but the specimen was misplaced (possibly it is at California State-Bakersfield University collection). I collected a small series there on July 11, 1990 to confirm the observations and provide voucher specimens. It should be noted that populations along the east side of the Sierra Nevada are larger and lighter than nominotypical *grunus* and may warrant description.

SILVER-BANDED HAIRSTREAK *Chlorostymon simaethis sarita* (Skinner).

Update: One of the states most rare butterflies known only from a handful of records in 1973 when Emmel & Emmel was first published. In 1992, this species moved into the southern California Deserts with many records published in that year's Season

Summary. John Emmel found the species in the Providence Mountains that year. Ken Davenport collected ten individuals at Cantil near Koehn Dry Lake in the Kern County desert on May 11th and 16 in that year. In 2003, John F. Emmel had *sarita* breeding in his garden at Hemet in Riverside County by growing the larval host Balloon Vine (2003 Season Summary).

SYLVAN HAIRSTREAK *Satyrium sylvinus sylvinus* (or *sylvinum*) (Boisduval).

Update: Originally believed to be the dominant subspecies of *sylvinus* in southern California, John F. Emmel (pers. comm.) later came to the conclusion that material from most of southern California is actually *desertorum* (Grinnell). Nominotypical *sylvinus* in southern California appears limited to the Glennville/Linn's Valley region in the Greenhorn Mountains of Kern County (See Davenport, 2003). Elsewhere in Kern County (including the Kern River Valley), it is subspecies *desertorum*.

GOLD-HUNTER'S HAIRSTREAK *Satyrium auretorum auretorum* (Boisduval).

Update: This subspecies is now known to occur in southern California (San Luis Obispo County and the west side of Kern County). It has been considered one of the rarest butterflies in the state and nearly endemic to California (some records from southern Oregon). Best seen in the Temblor Range west of McKittrick and Cottonwood Pass in latter half of May and early June in Kern County. I have seen literally 6000 or more of these in a single day as adults swarmed to Horehound along Hwy. 58 in the Temblor Range on both sides of the Kern/SLO County line on May 13 and June 4, 1987.

SANTA MONICA MOUNTAINS HAIRSTREAK *Satyrium auretorum fumosus* J. Emmel & Mattoni.

Update: Described from the Santa Monica Mountains, *fumosus* is poorly known and not commonly seen or collected. Possibly threatened by development.

HEDGE-ROW HAIRSTREAK *Satyrium saepium* (Boisduval).

Update: The species was listed as nominotypical *saepium* in 1973 by Emmel and Emmel. However, even then the Emmels stated that "true *saepium* was a Sierran butterfly." Since that time John F. Emmel has examined considerable material and described new subspecies in the state. He also examined material provided to him from Kern County. The majority of southern California populations are actually *Satyrium saepium chalcis*.

1) **BRONZED HAIRSTREAK** *Satyrium saepium chalcis* (W. H. Edwards).

The name *fulvescens* (Hy. Edwards) was considered a valid southern California subspecies in the SYSTEMATICS state checklist but after examining Kern County material, J. F. Emmel concluded (pers. comm.) that this name is likely based on worn and faded *chalcis* and hence likely a synonym of *chalcis*. Nominotypical *saepium* is NOT known from southern California but does occur just to the north in the southern Sierra Nevada in the Sherman Pass region.

2) **DESERT MOUNTAIN HAIRSTREAK** *Satyrium saepium subaridum* Emmel, Emmel & Mattoon.

Described from the Death Valley region in Inyo County. It barely reaches southern California along the east side of the Sierra Nevada, as at Walker Pass in Kern County. See the SYSTEMATICS publication for description and other information.

3) **COASTAL HEDGE-ROW HAIRSTREAK** *Satyrium saepium chlorophora* (Watson & W. P. Comstock).

Known as a form in Emmel & Emmel (1973), but elevated to subspecies in the SYSTEMATICS publication. Very darkly marked on the undersurface with a coastal distribution in San Diego County northward.

4) **DARK HEDGE-ROW HAIRSTREAK** *Satyrium saepium caliginosum* Emmel, Emmel & Mattoon.

Described in the SYSTEMATICS book from Baywood Park, San Luis Obispo County. This is another coastal butterfly distinguished by a dark contrasting undersurface and formerly lumped with *chlorophora* by many.

LEDA HAIRSTREAK *Ministrymon leda* (W. H. Edwards).

Update: The butterfly recognized as a questionable species THE INES HAIRSTREAK (*Ministrymon ines* (Edwards)) in Emmel & Emmel (1973) is now known to be a seasonal form of this species.

MOSS ELFIN *Callophrys (Deciduphagus) mossii* (Hy. Edwards).

Update: This species was not known from southern California in 1973, but now is. Adults are rarely seen and collections are usually obtained by rearing the immatures.

1) **DOUDOROFF'S ELFIN** *Callophrys (Deciduphagus) mossii doudoroffi* dos Passos.

Limited to San Luis Obispo from the Devil's Gap region (Jim Brock has done extensive rearing from this locality and Ken Davenport has records for adults). William Bouton recently found a population from Cerro Alto Camp and photographed an individual, the identification confirmed by Jim Brock. These butterflies occur on very dangerous rocky slopes above creeks in coastal mountains between Morro Bay and Atascadero. The current property owner of the Devil's Gap colony site is not willing to grant access to visitors.

2) **SAN GABRIEL MOUNTAINS ELFIN** *Callophrys (Deciduphagus) mossii hidakupa* Emmel, Emmel & Mattoon.

Reportedly, no wild adults of this taxa in the San Bernardino and San Gabriel Mtns. have ever been collected. See description and other information in the SYSTEMATICS publication.

DESERT or FOTIS ELFIN *Callophrys (Deciduphagus) fotis mojaviensis* Austin.

Update: Southern California populations were described in the SYSTEMATICS publication as distinct from *fotis* Strecker.

BRAMBLE HAIRSTREAK *Callophrys (Callophrys) perplexa perplexa* Barnes & Benjamin.

Update: Many are calling this hairstreak *Callophrys dumetorum* (Boisduval) but the type specimen of *dumetorum* is actually the GREEN HAIRSTREAK formerly known as *Callophrys viridis* W. H. Edwards, now a synonym of *dumetorum*. The published record of *C. viridis* from near Navajo Camp in San Luis Obispo County (April 1, 1988 leg. Ken Davenport) is almost certainly a form of *perplexa*. Emmel, Emmel Mattoon. (1998 in SYSTEMATICS publication) described inland populations formerly known as inland *C. viridis* as another subspecies of *perplexa*. Valid records of *C. dumetorum* occur to the north in Monterey County, not in southern California. The only species listed of the two in Emmel & Emmel is the taxon we are now

calling *perplexa*. However, new subspecies SUPERPERPLEXING HAIRSTREAK *Callophrys perplexa superperplexa* Emmel, Emmel & Mattoon (see SYSTEMATICS publication), occurs on the east side of the Sierra Nevada in southern Inyo County and possibly extreme northeastern Kern County.

MANSFIELD'S HAIRSTREAK *Callophrys (Mitoura) siva mansfieldi* Tilden.

Update: Now known to have a longer flight than given by Emmel and Emmel who stated it flies late March to early April. This butterfly actually peaks in the Temblors in May and June, where I have seen several thousand in a day, so it is far more common at times than previous reports have stated. Ken Davenport has found *mansfieldi* to the south in Ventura County where it can be common in Apache Canyon in May and also in Santa Barbara Canyon in Santa Barbara County in late April.

THORNE'S HAIRSTREAK *Callophrys (Mitoura) thornei* J. Brown.

Update: Described from Otay Mountain, San Diego County where it utilizes Tecate Cypress. Many are treating all hairstreaks in the *siva* and *nelsoni* groups as conspecific with *C. gryneus* Hübner and calling it the JUNIPER HAIRSTREAK. I follow the Emmel & Emmel approach here. I personally view this group as having many species, though some taxa need more study and may prove not to be species. (Mark Walker found adults on Otay Mtn. in March 2004 after the 2003 fires.)

MUIR'S HAIRSTREAK *Callophrys (Mitoura) muiri muiri* (Hy. Edwards).

Update: This butterfly was mentioned in Emmel & Emmel (1973) as occurring in San Luis Obispo County but just north of their arbitrary line for southern California. Here I consider all SLO County to be southern California. Recent specialists in the *Mitoura* group have elevated *muiri* to full species status, and not as a subspecies of NELSON'S HAIRSTREAK (*Callophrys (Mitoura) nelsoni* (Boisduval)). The butterfly occurs on Sargent Cypress on Cuesta Ridge.

1) *Callophrys muiri*: inland Juniper feeding population.

Discovered by James R. Mori and R. E. Wells at Cottonwood pass on both sides of the Kern/SLO County line (April 10, 1987). These are treated as a subspecies of *muiri* in the state list by Emmel, Emmel & Mattoon, but Paul Opler believes these are a subspecies of *C. gryneus* (including *siva* (W. H. Edwards) because they feed on junipers, not Sargent Cypress.

BARRY'S HAIRSTREAK *Callophrys (Mitoura) barryi* K. Johnson Southern California segregate.

Update: Not recognized to occur in Southern California in Emmel and Emmel (1973) but *barryi* was first described in 1976 so confusion with *nelsoni* was understandable. Remember that *barryi* feeds on *Juniperus occidentalis*, *nelsoni* on Incense Cedar. Limited to high dry slopes of the San Bernardino Mountains in southern California...but is likely to turn up on Owens Peak and vicinity in northern Kern County. Jonathan Pelham considers that what we are calling *barryi* in California is not the same biological entity as *barryi* from Oregon. Collections at the Natural History Museum of Los Angeles County document that *barryi* has been collected in the San Bernardino Mountains for many years but were not recognized for what they were.

AVALON HAIRSTREAK *Strymon avalona* (Wright).

Update: Since the GRAY HAIRSTREAK (=COMMON HAIRSTREAK in Emmel & Emmel) *Strymon melinus pudicus* (Hy. Edwards) has reached Santa Catalina Island where *avalona* is limited in distribution, it is feared interbreeding between these two closely related species may doom *avalona* to extinction.

MALLOW SCRUB-HAIRSTREAK *Strymon istapa clenchi* Austin & J. Emmel.

Update: Formerly known as THE COLUMELLA HAIRSTREAK (*Strymon columella istapa* (Reakirt)). Recent research (*Journal of the Lepidopterist's Society*, 1998 Vol. 52:3 by Robbins & Nicolay) has proposed that *istapa* and *columella* are not the same species. The name *clenchi* was originally applied as a subspecies of *S. columella*.

Subfamily Polymmatinae.

EASTERN TAILED BLUE *Everes comyntas sissona* (W. G. Wright).

Update: Emmel & Emmel (1973) suggested that this species might enter southern California. Unknown to them, Ken Davenport had already found this species along the Kern River at Hart Park near Bakersfield in 1970. The species is transient there and does not occur there every year. The species is also present in virtually every county in the San Joaquin Valley with recent discoveries in Tulare, Fresno, Kings and Madera Counties. Perhaps the Kern County occurrences are transiently established from those in northern California. The name *sissona* applies to California populations according to Austin in a recent *Journal of the Lepidopterists Society* (2002).

WESTERN TAILED BLUE *Everes amyntula nesiotis* Emmel & Emmel.

Update: This new subspecies (see SYSTEMATICS publication) occurs on Santa Rosa Island in Santa Barbara County.

ECHO AZURE *Celastrina echo* (W. H. Edwards).

Update: The taxonomy of this group is debated. Historically viewed as a subspecies of the SPRING AZURE *Celastrina ladon*, there is strong belief now that *echo* is a species. Another controversy has to do with what has been considered another subspecies of SPRING AZURE found in the eastern Mojave Desert. It may or may not be the same species as *echo*.

CINEROUS BLUE or AZURE *Celastrina (ladon) cinerea* (W. H. Edwards).

Update: There is a possibility this may or may not be the same insect as the Arizona *cinerea*. Some believe *cinerea* may be a full species separate from the SPRING AZURE (*C. ladon*) and the ECHO AZURE. Others believe it may be a subspecies of *echo*. Obviously, more research is needed to work out these issues.

SILVERY BLUE *Glaucopsyche lygdamus* (Doubleday).

Update: This species is very complex with many unresolved and problematic issues. Emmel & Emmel listed *australis* F. Grinnell and two Eastern Mojave Desert segregates. These updates:

1) **PALOS VERDES SILVERY BLUE** *Glaucopsyche lygdamus paloverdesensis* E. M. Perkins & J. Emmel.

Described after Emmel & Emmel and believed extinct, then rediscovered. Rudi Mattoni published interesting information on this subspecies of the Palos Verdes peninsula in the *Journal of Research on the Lepidoptera* (1992, Volume 31 (3-4).

2) **MOJAVE DESERT SILVERY BLUE** *Glaucopsyche lygdamus deserticola* Austin & J. Emmel.

Described from the Providence and other desert ranges in southeastern California and Nevada in the SYSTEMATICS book.

3) **COLUMBIA BLUE** *Glaucopsyche lygdamus* nr. *columbia* (Skinner).

Not listed as being in southern California, this butterfly is actually very common along the east side of the Greenhorn Mountains and in the Piute Mountains of Kern County. However, these populations are rather different from *columbia* from type locality populations.

4) There is a population occurring along the east side of the Sierra Nevada and in Kelso Valley in southern Inyo and Kern Cos. that is similar to populations in the eastern Mojave Desert. I am not sure if the name *deserticola* applies to these populations or not. Emmel, Emmel & Mattoon listed an east slope subspecies on *Lotus procumbens* in their 1998 state checklist but I am not sure if this applies to southern California populations or those found east of the Yosemite region. See SYSTEMATICS publication, but little information is given on these issues.

5) **FALSE XERCES BLUE** *Glaucopsyche lygdamus pseudoxerces* Emmel & Emmel.

This newly described subspecies closely resembles the extinct XERCES BLUE (*G. lygdamus xerces*). It occurs in Santa Barbara County on Santa Rosa Island. See SYSTEMATICS publication.

6) **SAND DUNES or COASTAL SILVERY BLUE** *Glaucopsyche lygdamus* nr. *sabulosa* Emmel, Emmel & Mattoon.

Newly described in the SYSTEMATICS publication from coastal sand dunes in Monterey County. The authors suggested it may occur in San Luis Obispo County. A limited amount of material I have collected on serpentine outcrops and sandy soils in Perfumo Canyon and near Los Osos in San Luis Obispo County resembles *sabulosa*. I have not collected sufficient material and compared them to material of *sabulosa* at the LACM. There may also be the issue of whether *sabulosa* is sufficiently distinct to warrant a name. I draw no conclusions here.

ARROWHEAD BLUE *Glaucopsyche piasus* (Boisduval).

Update: This is another very difficult species. Emmel & Emmel (1973) believed nominotypical *piasus* and *sagittigera* (Felder & Felder) covered southern California material in 1973. The differences here are subtle and the reader should consult the original descriptions. These changes:

1) **ARROWHEAD BLUE** *Glaucopsyche piasus piasus* (Boisduval).

Limited to rare populations at high elevations in the Greenhorn Mountains of Kern County. The Frazier Park regional (Kern and Ventura Cos.) population is a blend between various southern California subspecies including *sagittigera*.

2) **EASTERN SIERRA NEVADA ARROWHEAD BLUE** *Glaucopsyche piasus excubitus* Emmel, Emmel & Mattoon

Newly described (see SYSTEMATICS publication) from the east side of the Sierra Nevada on bush lupines. Range includes Nine Mile Canyon and Sageland area in Kelso Valley region in Inyo and Kern Cos.

3) *Glaucopsyche piasus umbrosa* Emmel, Emmel & Mattoon

Described from the mountains of San Diego County (see SYSTEMATICS publication).

4) **SAN GABRIEL MOUNTAINS ARROWHEAD BLUE** *Glaucopsyche piasus gabrielina* Emmel, Emmel & Mattoon.

Described from the San Gabriel Mountains in the SYSTEMATICS publication.

5) **COASTAL ARROWHEAD BLUE** *Glaucopsyche piasus sagittigera* (Felder & Felder).

Emmel & Emmel believed this subspecies may have become extinct but it still occurs in the mountains bordering the Glendale region and a similar population has just been found in the mountains of eastern Santa Barbara County.

SONORAN BLUE *Philotes sonorensis* (Felder & Felder).

Update: Subspecies *extincta* Mattoni was described in the *Journal of Research on the Lepidoptera* in 1989 (1991) Volume 28 (4). This was found in the classic Azusa and San Gabriel River wash. Since 1973, this species has been found to occur in the Piute Mountains (Laura Peak) and southern Sierra Nevada (including Chimney Peak Rd. at south end of Kern Plateau) and the upper Kern River Canyon just north of southern California (Ken Davenport). Sierra Nevada material is listed as a different segregate than nominotypical *sonorensis* in the Emmel, Emmel & Mattoon state checklist (1998: SYSTEMATICS).

SMALL BLUE *Philotiella speciosa purissima* Priestaf & J. Emmel

Update: This newly described subspecies (see SYSTEMATICS publication) has been found by Richard Priestaf in coastal Santa Barbara County; Harris Grade at Burton Mesa Blvd., N. of Lompoc. This species was formerly placed in the genus *Philotes*.

SQUARE-SPOTTED BLUE *Euphilotes battoides* (Behr).

Update: Previously in the genus *Philotes*. The BERNARDINO BLUE (*Euphilotes bernardino*) was recognized in a 1988 *Journal of Research on the Lepidoptera* paper (Volume 27 (3-4, 1989) as a species distinct from *battoides*. Taxa currently considered allied with *E. battoides* include:

1) **EL SEGUNDO BLUE** *Euphilotes battoides allyni* (Shields) (unnamed in Emmel & Emmel, 1973).

2) New subspecies *argocyanea* and *panamintensis* were described by Pratt & J. Emmel from mountain ranges in the Death Valley region (see the SYSTEMATICS publication).

BERNARDINO BLUE *Euphilotes bernardino* (Barnes & McDunnough).

Update: See comments above. This butterfly (*E. bernardino bernardino*) overlaps or meets ranges with COMSTOCK'S BLUE (*Euphilotes battoides/intermedia comstocki*) in the Piute and Greenhorn Mountains in Kern County which suggests that there are two biological species and that Mattoni was correct in splitting *battoides* and *bernardino*.

1) **MARTIN'S BLUE** *Euphilotes bernardino martini* (Mattoni).

Placed with *bernardino* as a subspecies; see SYSTEMATICS publication.

2) **INYO MOUNTAINS BLUE** *Euphilotes bernardino inyomontanus* Pratt & J. Emmel

Newly described in SYSTEMATICS publication. Occurs in many of the desert mountain ranges and in the arid southern Sierra Nevada in the Kelso Valley region, including arid eastern slope of the Sierra Nevada.

3) **GARTH'S BLUE** *Euphilotes bernardino* nr. *garthi* Mattoni

Found at Point Loma, San Diego County. Information in *Journal of Research on the Lepidoptera* (1988 (1989)) by Mattoni.

BAUER'S BLUE *Euphilotes baueri vernalis* Pratt & J. Emmel.

Update: Placed with *E. battoides* in Emmel, Emmel & Mattoon's 1998 state list but recent comments by Gordon Pratt indicate he now places *vernalis* as a subspecies of *baueri* (Shields). Pratt reports *vernalis* at Coxey Meadows and the northwest slopes of the San Bernardino Mountains, San Bernardino County, and is similar to populations in the Coso Range, Inyo County.

INTERMEDIATE BLUE *Euphilotes intermedia* (Barnes & Benjamin).

COMSTOCK'S BLUE *Euphilotes intermedia comstocki* Shields.

Update: Noted as a subspecies of *E. battoides* in the Emmel, Emmel and Mattoon's 1998 state list, Gordon Pratt has concluded (Pratt, pers. comm.) that *comstocki* is better placed with *intermedia*. Emmel & Emmel (1973) stated this was a very rare taxon known only from a Tehachapi Mountains series collected July 18, 1918. This long uncollected butterfly was rediscovered by two different collectors on the same day – July 6, 1974. Jim Brock found it in the Piute Mountains on Piute Mtn. Vista and James Scott found it in the Kennedy Meadows, Tulare County region on the Kern Plateau. Since then, Ken Davenport has found it on Bald Mountain (Tulare County) on the Kern Plateau, Pine Flat at the south end of the Kern Plateau, the Piute Mtn. Rd. overlooking Lake Isabella and several sites in the Greenhorn Mtns. of Kern County. This blue is common in its localized habitats where its larval host is *Eriogonum umbellatum*. *E. bernardino* uses *E. fasciculatum* as the larval host. Where COMSTOCK'S and BERNARDINO BLUES come together, they retain their separate identities. Ken Davenport provided details in spring and fall 2002 issues of the NEWS of the LEPIDOPTERIST'S SOCIETY.

ELLIS'S BLUE *Euphilotes ellisi* (Shields).

Update: This was the unnamed "*Philotes battoides*" subspecies from the Providence, New York and Clark Mountains of the eastern Mojave Desert. It occurs in the same localities where *E. bernardino martini* flies in the spring. They are now viewed as different biological species by *Euphilotes* specialists. Others still view them as a subspecies of *E. battoides*.

DOTTED BLUE *Euphilotes enoptes* (Boisduval).

Update: Nominate *enoptes* is not in southern California though some Greenhorn Mountain populations are similar, but lack the broad black borders above. Subspecies *tildeni* (Langston) is far more widespread than Emmel & Emmel suspected. It occurs widely in the Kern County mountain ranges and even some Mojave Desert ranges. The Santa Paula population in Ventura County is closer to *tildeni* than *smithi* (Mattoni). These new subspecies are described in the SYSTEMATICS publication:

1) *Euphilotes enoptes opacapulla* Austin.

Split from *dammersi*, this subspecies occurs in the mountain ranges of the eastern Mojave Desert (see SYSTEMATICS book).

2) **LANGSTON'S BLUE** *Euphilotes enoptes langstoni* (Shields).

Now known to occur in the arid southern Sierra Nevada in Kern County. Common on Chimney Peak Rd. in May south in many colonies south to Butterbrecht Peak on *Eriogonum nudum*.

3) *Euphilotes enoptes cryptorufes* Pratt & J. Emmel

Described from Pyramid Mountain (San Jacinto Mtns.) in Riverside County (see SYSTEMATICS book). A very rare butterfly.

ANCILLA BLUE *Euphilotes ancilla* (Barnes & McDunnough).

Update: Gordon Pratt has reported finding this species in the Coso Range, Inyo County, and other desert mountains on the China Lake Military Base. This species is also suspected to occur in the arid southern Sierra Nevada. Adult *Euphilotes* are extremely difficult to identify, even with genitalic determinations within the *enoptes / ancilla* group.

MOJAVE BLUE *Euphilotes mojave mojave* (Watson & W. P. Comstock).

Update: Another subspecies from Nevada has been described.

ELVIRA'S BLUE *Euphilotes pallescens elvirae* (Mattoni).

Update: Treated as a subspecies of THE RITA BLUE (*Euphilotes rita* (Barnes & McDunnough)) by Emmel & Emmel in 1973 and by some other current workers and organizations. Most specialists place *elvira* with THE PALE BLUE (*E. pallescens* (Tilden & Downey) at present. Whatever the correct placement, *elvira* is a very distinctive blue with its heavy spotting.

MELISSA BLUE, ORANGE-MARGINED BLUE *Plebejus melissa paradoxa* (F. Chermock).

Update: Considered subspecies *inyoensis* (Gunder) in Emmel & Emmel, 1973. The name *inyoensis* is presently considered a synonym of *paradoxa* – an arrangement I doubt.

GREENISH BLUE *Plebejus saepiolus* (Boisduval).

Update:

1) **SAN GABRIEL MOUNTAINS BLUE** *Plebejus saepiolus aureolus* Emmel, Emmel & Mattoon.

Recently described from the San Gabriel Mountains, now may be extinct. See SYSTEMATICS publication.

2) **SIERRA NEVADA GREENISH BLUE** *Plebejus saepiolus aehaja* (Behr).

The name *aehaja* (see SYSTEMATICS publication) now applies to the Sierra Nevada populations. It occurs in the Greenhorn and Piute Mtns. in Kern County. Some populations in the Greenhorns closely resemble subspecies *hilda* (J. & F. Grinnell).

BOISDUVAL'S BLUE *Plebejus icarioides* (Boisduval).

Update: New subspecies from southern California have been described:

1) **ATASCADERO BLUE** *Plebejus icarioides atascadero* Emmel, Emmel & Mattoon

Formerly known as "near pardalis" but not in Emmel & Emmel, 1973. Newly described in the SYSTEMATICS publication. Known from inland SLO County and Cottonwood Pass on SLO/Kern County line.

2) **TRABUCO BLUE** *Plebejus icarioides santana* Emmel, Emmel & Mattoon.

Known from Trabuco Canyon, Santa Ana Mountains, Orange County in Orsak's book. Formally described in SYSTEMATICS.

3) **EASTERN SIERRA BLUE** *Plebejus icarioides eosierra* Emmel, Emmel & Mattoon

A paler version from eastern slope of the Sierra Nevada, described in the SYSTEMATICS publication.

4) **ARGUS MOUNTAINS BLUE** *Plebejus icarioides argusmontana* Emmel, Emmel & Mattoon

Recently described in the SYSTEMATICS book. Known as unnamed Argus Mountains subspecies in Emmel & Emmel, 1973.

5) **PANAMINT MOUNTAIN BLUE** *Plebejus icarioides panamintina* (J. Emmel, T. Emmel & Mattoon).

Update: Described in the SYSTEMATICS publication from the Panamint Mountains near Death Valley.

SHASTA BLUE *Plebejus shasta shasta* (W. H. Edwards).

Update: There is an old record from Tehachapi Mountains August 22, 1937 by W. A. Evans. Gordon Pratt, John Emmel and I observed suitable looking cushion plant habitat there but no SHASTA BLUES. It is possible drying out of the range has eliminated *shasta* from the range or it may be rare there or fly earlier in the season. The specimen may also be mislabeled.

TEXAN ACMON BLUE *Plebejus acmon texana* (Goodpasture).

Update: The taxonomy of *texana* is open to question. It may not be conspecific with nominotypical ACMON BLUES (*Plebejus acmon* (Westwood & Hewitson)) as noted by Opler in a recent paper in the TAXONOMIC REPORT. Some are viewing *texana* as a subspecies of the LUPINE BLUE (*Plebejus lupini*). It may also be a separate species itself. Because *texana* is multiple brooded, I agree with Glassberg (see his line of reasoning in NABA names publication, second edition) that an affinity with *P. lupini* is doubtful. However it is possible that what we are calling "*texana*" may represent more than one species.

LUPINE BLUE *Plebejus lupini* (Boisduval).

Update: Opler and J. Emmel suspect there is much more complexity with this group than previously suspected. Comments:

1) **CLEMENCE'S BLUE** *Plebejus lupini monticola* (Clemence).

Possibly another species distinct from *acmon*. Populations in this complex in the southern Sierra were referred to newly described *argentata* Emmel, Emmel & Mattoon in SYSTEMATICS, but apparently, may really be *monticola* as believed earlier.

2) **DESERT MOUNTAINS LUPINE BLUE** *Plebejus lupini argentata* Emmel, Emmel & Mattoon.

Newly described from Mojave Desert Mountain Ranges with similar populations in arid Sierra Nevada, but see comments above. This also may be a separate species.

3) **GREEN BLUE (=SKINNER'S BLUE)** *Plebejus (lupini) chlorina* (Skinner),

Viewed as a form with a greenish cast in Emmel & Emmel and elevated to subspecies status in the SYSTEMATICS state checklist. Recent field work strongly indicates *chlorina* flies in close proximity or even with *monticola* on different host plants, *monticola* on *Eriogonum fasciculatum* and *chlorina* on *E. umbellatum*. The taxon *monticola* is becoming worn when *chlorina* appears. Formerly believed limited to the Tehachapi Mountains, we now know that *chlorina* (or something very similar) also occurs on Mt. Pinos, Piute and Greenhorn Mountains and on the Kern Plateau in the southern Sierra Nevada proper. Very local, often common when found in late June and July. Probably not the same species as *monticola*.

4) **COAST RANGE LUPINE BLUE** *Plebejus lupini*: Coast Range population.

P. l. monticola was expected in SLO County, but Ken Davenport found a distinctive phenotype along Hwy. 58 at several sites from Syncline Hill to Santa Margarita and in eastern Monterey and western Fresno Cos. to the north. Females lack blue over-scaling in these populations. Other atypical populations occur in northeastern Santa Barbara and eastern Ventura Cos.

SAN EMIGDIO BLUE *Plebejus emigdionis* (F. Grinnell).

Update: Many new colonies discovered in Kern County at Weldon, Onyx, Cache Creek and Sand Canyon in Tehachapi Mountains. Also occurs along Interstate 5 on the Ridge Route in Los Angeles County and in Nine Mile Canyon, Inyo County.

REAKIRT'S BLUE *Echinargus isola alce* Edwards.

Update: An uncommon resident in most of Kern County including Kern River nr. Bakersfield and in southern Sierra Nevada.

CERAUNUS BLUE *Hemiargus ceraunus gyas* (W. H. Edwards).

Update: Now known to be an uncommon resident in Kern County in southern Sierra Nevada and southern San Joaquin Valley alfalfa fields.

FAMILY RIODINIDAE (METALMARKS)

This is another difficult group. Pratt & Ballmer published a scientific paper in the *Journal of the Lepidopterist's Society* (45:1) entitled "Three biotypes of *Apodemia mormo* (Riodinidae) in the Mojave Desert" in 1991. They called these biotypes but did not go so far as to call them species. Opler in his Peterson Field Guide and the Opler & Warren checklist do. My own considerable experience with many taxa (I have little experience with most of the new taxa in the SYSTEMATICS publication) in this group convinces me that there are FOUR species at least in the region. The problem is how to break them down and group them.

MORMON METALMARK *Apodemia mormo* (Felder & Felder).

Update: Many choose to follow the traditional view that everything that looks like a Mormon Metalmark is a Mormon Metalmark. Their view is that it is just too difficult to separate them with assurance so why separate them? To that, I will simply say that there are actually recognizable pattern differences between many subspecies in the *mormo*, *virgulti*, *mejicanus* (=deserti) and *cythera* groups. On the other hand, Gordon Pratt has demonstrated that rearing is important and sometimes definitive in placing members in the complex to "biotype"² or species. Here is a tentative breakdown of this species and where subspecies/populations are best associated taxonomically.

1) **COASTAL MORMON METALMARK** *Apodemia mormo mormo* (Felder & Felder) Coast Range segregate.

A very blackish population that has also gone under the name *mormonia* (Boisduval) by various authorities, the name *mormonia* is now considered a synonym of *mormo*. In eastern SLO and extreme western Kern County there occurs a form of what appears to be the endangered subspecies *langei* in association with *Eriogonum indictum*. Emmel & Emmel did not mention this *langei* phenotype, but Howe did in his 1975 book on the butterflies of North America. DNA work has shown LANGE'S METALMARK (*Apodemia mormo langei*) to be the same species as *Apodemia mormo*. Coastal *mormo* and BEHR'S METALMARK occur together along Hwy. 58 from Santa Margarita eastward for about 20 miles along that road.

2) near **LANGE'S METALMARK** *Apodemia mormo* nr. *langei* J. A. Comstock.

True *langei* from Antioch is an endangered species. This population from Ortega Grade to Cottonwood Pass is extremely local but common and variable and is not endangered.

3) **AUTUMN MORMON METALMARK** *Apodemia mormo autumnalis* Austin

This was called *Apodemia mormo mormo* in Emmel & Emmel (1973) but Austin gave it a different name in 1998 (see SYSTEMATICS publication). The name was based on the late flight of this entity.

4) **MORMON METALMARK** *Apodemia mormo*: Kernville/Greenhorn Mtns. segregate.

This population is found on *Eriogonum wrightii* and has two broods...one in late May to early June and another in October. Most individuals are very black but others are mostly orange. The orange individuals are visibly separable from the TUOLUMNE METALMARK (*Apodemia mormo/cythera tuolumensis*) which may overlap localities and portions of the flight period with it in the fall. Gordon Pratt believes this may be in the *virgulti* group despite the black phenotype which is very *mormo*-like. DAVENPORT'S METALMARK (*Apodemia virgulti davenporti*) flies in the same general region but earlier and at higher elevations in the spring and on a different host (*Eriogonum fasciculatum*). The *mormo* entity was discovered by Ken Davenport near Kernville on June 6, 1999 and first collected in numbers the following season by Jack Levy and Davenport...its presence was not known when Pratt and Ballmer wrote their "three" biotypes paper. So now there are FOUR "biotypes".

BEHR'S METALMARK *Apodemia virgulti* (Behr).

Update:

1) **BEHR'S METALMARK** *Apodemia virgulti virgulti* (Behr)

Appears to reach portion of Tehachapi Mountains and Mt. Pinos. It is replaced by the next subspecies in Sand Canyon in the Tehachapi Mtns. southeast of Tehachapi. This subspecies is multiple-brooded at most localities in southern California.

2) **DAVENPORT'S METALMARK** *Apodemia virgulti davenporti* Emmel, Emmel & Pratt.

Recognized as biologically and phenotypically distinct from nominotypical *virgulti* and named in the SYSTEMATICS publication. Not discovered by Davenport as some have believed, though I have extensive experience with this subspecies. The presence of *davenporti* in such close proximity to the newly discovered BLACK/ORANGE entity in the Greenhorn Mtns. is one reason why I place that entity with the *mormo* group. It is also possible *davenporti* may be a separate species, based on it having but one brood yearly. If so, then the black/orange entity might be in the *virgulti* group. Or maybe they are both *virgulti* subspecies which stay different on their different buckwheat hostplants. But I find this explanation doubtful. Distribution limited to Kern, Southern Tulare and extreme SW Inyo Counties.

3) **WHITISH METALMARK** *Apodemia virgulti dialeuroides* Emmel, Emmel & Pratt.

DNA has confirmed its place in the *virgulti* group. Name changed to reflect differences from Mexican *dialeuca* Opler and Powell. See SYSTEMATICS publication.

4) *Apodemia virgulti*: Oak Creek Pass/Tehachapi Mtns. segregate.

Occurs off Willow Springs Road near Oak Creek Pass in Tehachapi Mtns. in desert scrub habitat, canyons and washes on desert side of Tehachapi Mtns. It is double brooded with late spring flight in late May and early June and again in October. Most individuals are black patterned and resemble *Apodemia mormo mormo*. Others are very similar to *Apodemia virgulti virgulti*. I believe these are very similar to *mojavelimbus*. Gordon Pratt in personal communication believes these are closest to the *virgulti* group. Ken Davenport first found this population; Emmel & Pratt have reared these.

5) *Apodemia virgulti*: Lower Kern Canyon population.

Known from entrance of Kern Canyon east to about Lucas Creek along Hwy. 58 and side canyons. Host is *Eriogonum nudum* with two broods: Late May/June and late August/September. Most individuals resemble *A. mormo mormo* with a rare specimen which resembles *virgulti*. J. F. Emmel & Pratt have reared these. The following are all newly described subspecies described in the SYSTEMATICS publication. (Their placement with *virgulti* is provisional.)

6) **ORD MOUNTAINS METALMARK** *Apodemia virgulti mojavelimbus* Emmel, Emmel & Pratt.

² Editor: a term with no formal taxonomic status under the International Code of Zoological Nomenclature.

Update: This is a newly described subspecies described as closely related to *davenporti*. It occurs along the southwestern edge of the Mojave Desert and San Gabriel Mountains.

7) **PENINSULAR METALMARK** *Apodemia virgulti peninsularis* Emmel, Emmel & Pratt

Update: Many of the characters and information suggests similarities with the *cythera/tuolumnensis* group but the early flight period fits better with *virgulti*. Newly described from the Laguna Mountains, NE edge of El Prado Meadow.

8) **SAND DUNES METALMARK** *Apodemia virgulti arenaria* Emmel, Emmel & Pratt

Update: Described from the El Segundo Dunes in Los Angeles County. Similar populations occur on the sand dunes of SLO County. May be a full species due to significant protein differences with *virgulti* (SYSTEMATICS pg. 807). Multi-brooded.

9) **PRATT'S METALMARK** *Apodemia virgulti pratti* Emmel & Emmel.

Update: Occurs in Holcomb Valley in the San Bernardino Mountains.

10) **DARK METALMARK** *Apodemia virgulti nigrescens* Emmel & Emmel.

Update: Occurs at Colton in San Bernardino County. Chemically close to *virgulti*.

SONORAN METALMARK (DESERT METALMARK) *Apodemia mejicanus deserti* Barnes & McDunnough.

Update: Rearing showed Kern County and upper Mojave Desert populations are multi-brooded and the same as Colorado Desert *deserti*. Emmel & Emmel considered these closer to *Apodemia mormo mormo* based on the research of earlier workers.

METALMARK TAXONOMIC NOTE:

Pratt and Ballmer allied the *cythera* group with *mormo* in their paper on three biotypes. Thus, both *cythera* and *tuolumnensis* are both still considered subspecies of *Apodemia mormo* following that and other publications. My elevation of them here to full species status within *cythera* is based on my personal field observations as noted below.

CYTHERA METALMARK *Apodemia cythera* (W. H. Edwards).

Update: Traditionally viewed as a subspecies of *Apodemia mormo* because of the fall flight. This view became suspect when I found that *tuolumnensis* occurs at many of the same places the MORMON METALMARK does and flies at the same time in SLO and Kern Counties, without blending and on different hosts. This sympatry strongly indicates two species are present.

1) **TUOLUMNE METALMARK** *Apodemia cythera tuolumnensis* Opler & Powell.

Update: The application of the name *tuolumnensis* to southern California material is based on the recommendation of John F. Emmel. Many continue to call these *cythera* which in the strict sense applies to material from Whitney Portal northward to the Sherwin Summit area in northern California. This butterfly is far more widespread than many believe, even occurring in the inland mountains ranges of Los Angeles, Ventura, Kern and SLO Counties.

2) *Apodemia cythera*: Santa Barbara County population.

Update: This butterfly occurs in Aliso and Bates Canyons in the Cuyama Valley area. It appears closer to *cythera* than *tuolumnensis*. Very common in late August and September.

PALMER'S METALMARK *Apodemia palmerii palmerii* (W. H. Edwards).

Update: Previously believed to be subspecies *marginalis* Skinner. Austin published information in the *Journal of Research on the Lepidoptera* (1987/1988 Vol. 26:1-4) showing that California material is actually the nominotypical subspecies.

FAMILY LIBYTHEIDAE (SNOUT BUTTERFLIES)

WESTERN SNOUT BUTTERFLY *Libytheana carinenta streckeri* (Field)

Update: Long known as *L. bachmanii larvata*. Recent authors, including Emmel, Emmel & Mattoon, listed this species as *carinenta*. However recent discussions among lepidopterists suggest that California Snouts may not be *carinenta* but *bachmanii* or another species. There is no documented blend zone between eastern *bachmanii* or western *streckeri*. The name *larvata* correctly applies to a local population in Texas that itself may be a species.

FAMILY NYMPHALIDAE (BRUSH-FOOTED BUTTERFLIES)

Subfamily Apaturinae:

MOUNTAIN HACKBERRY BUTTERFLY *Asterocampa celtis montis* (W. H. Edwards).

Update: Friedlander (*Journal of Research on the Lepidoptera* (1986/1987; Vol. 25:4) reported a record of this species (as ssp. *antonia*) from the San Bernardino Mtns. in San Bernardino County. I consider *montis* to differ from *antonia* and use that name. This is not a regular member of the California fauna. I have taken *montis* very sparingly in the Hualapai Mountains south of Kingman, Mohave County, Arizona not far from California.

Subfamily Limenitidinae:

LORQUIN'S ADMIRAL *Limenitis lorquini* (Boisduval).

Update: Many populations in southern California are the newly recognized POWELL'S ADMIRAL (*Limenitis lorquini powelli* (Field)). Nominotypical *lorquini* occurs elsewhere, including the southern Sierra Nevada in Kern County. Subspecies *powelli* is

differentiated by broader white bands, the spots are more contiguous and only narrowly divided by dark veins. The orange patch on the FW apex is narrower than the patch on nominotypical *lorquini*. See the SYSTEMATICS publication.

Subfamily Nymphalinae:

BUCKEYE BUTTERFLY *Junonia coenia grisea* Austin & J. Emmel.

Update: Formerly placed in the genus *Precis*. The California BUCKEYE was described in the SYSTEMATICS publication.

DARK BUCKEYE *Junonia nigrosuffusa* Barnes & McDunnough.

Update: This taxon has also been placed with *evarete* Cramer (Opler and Warren, 2002) or *genoveva* Stoll by various authors.

ZEPHYR ANGLEWING *Polygonia gracilis zephyrus* (W. H. Edwards).

Update: Long considered a full species, most workers now view *zephyrus* to be the western representative of *P. gracilis*. Museum collections appear to support this arrangement.

OREAS ANGLEWING *Polygonia oreas oreas* (W. H. Edwards).

Update: There are many older records (1930's) from San Luis Obispo County (1 male Oceano 9 IX 32 and 1 female Oceano 8 X 32 ; Huasna 16 IX 32; Arroyo Grande 16 IX 32 and 17 IX 32 (all Homer Edgecomb) and the LACM has a specimen from a creek near San Luis Obispo collected in April, 1955 by Chris Henne. Recent efforts to find it in that county have been unsuccessful. The *Ribes divaricatum* host plant grows along Morro Creek and the butterfly may still occur there. It still occurs in Monterey County in northern California. John F. Emmel provided these records to Bob Allen working on a yet unpublished SLO County paper.

MILBERT'S TORTOISESHELL *Nymphalis milberti subpallida* (Cockerell)

Update: Previously under subspecies *furcillata* (Say). The adjustment was made by Austin in the SYSTEMATICS publication.

Subfamily: Melitaeinae:

CHALCEDON CHECKERSPOT *Euphydryas chalcedona* (Doubleday).

Update: Populations from the Tehachapi Mountains and most of the southern Sierra Nevada have a well developed yellow pattern and are notably less black than coastal *chalcedona* or from Sierra Nevada populations farther north. These populations resemble *macglashanii* (Rivers) or *olancha* (W. G. Wright). They were previously lumped with *Euphydryas chalcedona chalcedona*. These more yellow populations may warrant description.

1) **OLANCHA CHECKERSPOT** *Euphydryas chalcedona* nr. *olancha* (W. G. Wright)

Populations from arid eastern Sierra Nevada in Kern County (Chimney Peak Rd., Walker Pass and Kelso Valley) resemble *olancha*.

2) **HENNE'S CHECKERSPOT** *Euphydryas chalcedona hennei* J Scott.

This is the butterfly Emmel & Emmel referred to as the QUINO CHECKERSPOT (*Euphydryas chalcedona quino* (Behr)). The name *quino* correctly applies to what was formerly known as *Euphydryas editha wrighti* Gunder. James Scott applied the current name *hennei* in Papilio #1 in 1981.

EDITH'S CHECKERSPOT (=EDITHA CHECKERSPOT) *Euphydryas editha* (Boisduval).

Update: Emmel & Emmel recognized four subspecies in southern California. Currently, there are at least eight recognized subspecies.

1) **EDITH'S CHECKERSPOT** *Euphydryas editha editha* (Boisduval).

Nominotypical *editha* is actually what has been considered the BAY REGION CHECKERSPOT *Euphydryas editha bayensis* Sternitzky. It occurs in Santa Barbara and San Luis Obispo Counties. Emmel & Emmel referred to it as "near *bayensis*." See SYSTEMATICS publication for discussion.

2) **EDITH'S CHECKERSPOT** *Euphydryas editha*. Walker Pass/Piute Mountains.

Known as *editha editha* by Emmel & Emmel (1973). With the application of the name *editha* to coastal *bayensis*, the distinctive Walker Pass and Piute Mountains population was left without a name.

3) **QUINO CHECKERSPOT** *Euphydryas editha quino* (Behr)

=WRIGHT'S CHECKERSPOT =WRIGHT'S EUPHYDRYAS (These were previously known common names in Emmel & Emmel, 1973). Formerly went under the epithet *wrighti* Gunder and also applied to a subspecies of *chalcedona* as noted above. This checkerspot quickly went from being common to becoming an endangered species. The main factor in this appears to have been several years of prolonged drought. In 1980, I saw about a hundred individuals of this butterfly at Lake Matthews in Riverside County in a couple of hours. No more.

4) **ISLAND CHECKERSPOT** *Euphydryas editha insularis* Emmel & Emmel.

Described after 1973 from one of the channel islands.

5) **LUESTHER'S CHECKERSPOT** *Euphydryas editha luestherae* Murphy & Ehrlich.

Described in the *Journal of the Lepidopterist's Society* (Volume 34:3). Previously lumped with *bayensis*. It occurs in interior San Luis Obispo County from the Pozo and Santa Margarita area.

6) **RUDDY CHECKERSPOT** *Euphydryas editha rubicunda* (Hy. Edwards).

Populations from Cedar Creek in the Greenhorn Mtns. and lower Kern Canyon in Kern County are closest to *rubicunda* according to John F. Emmel.

7) **AUGUST CHECKERSPOT** *Euphydryas editha augustina* (W. G. Wright).
Formerly known as subspecies *augusta* (Edwards).

8) **EHRlich's CHECKERSPOT** *Euphydryas editha ehrlichi* Baughman & Murphy.
Recently described from desert side of the San Bernardino Mountains in the *Systematics* publication.

ARACHNE CHECKERSPOT *Poladryas arachne monache* (J. A. Comstock).
Update: Known as the MONACHE CHECKERSPOT and long believed limited to the southern Sierra Nevada in Tulare County, Gordon Pratt recently discovered this taxon on the higher ridges in the Coso Range, Inyo County while researching the butterfly fauna of a military base. This is south of the Emmel & Emmel Panamint Springs northern boundary for southern California and was a very important and unexpected discovery.

TINY CHECKERSPOT or **IMPERIAL CHECKERSPOT** *Dymasia dymas imperialis* (Bauer).
Update: This was listed in the genus *Microtia* in Emmel & Emmel.

LEANIRA CHECKERSPOT *Chlosyne (Thessalia) leanira* (Felder & Felder)
Update: The variable *leanira* populations in the southern Sierra Nevada in Kern County were unknown in 1973. Jim Brock determined that this population exhibited features of *leanira*, *wrightii* and *alma*. DAVIE'S CHECKERSPOT (*Chlosyne leanira daviesi* (Wind)) was considered a synonym of *leanira* by Austin & Smith (1988). Populations from interior San Luis Obispo County were considered *daviesi* by Emmel & Emmel (1973). Austin & Smith commented these SLO County populations "appear to be intermediate between *T. l. nebularum*, *T. l. wrightii* or *T. l. elegans*". John Pasko and Ken Davenport have also found atypical populations in the Sierra Madre Range of eastern Santa Barbara County (24 IV and 1 V 2004).

1) **ALMA CHECKERSPOT** *Chlosyne leanira alma* (Strecker).
The name *alma* applies to most Mojave Desert orange-red populations, including what Emmel & Emmel called the CERRITA CHECKERSPOT (*Chlosyne leanira cerrita* (Wright)). (See *Bull. Allyn Museum* #118, 1988 and the *SYSTEMATICS* book, 1998 for more information). "*Cerrita*" is now considered only a form name for intermediates between *alma* and *wrightii*.

2) **ELEGANT CHECKERSPOT** *Chlosyne leanira elegans* Priestaf & J. Emmel.
This newly described subspecies from coastal SLO County was described in the *SYSTEMATICS* publication.

3) **WRIGHT'S CHECKERSPOT** *Chlosyne leanira wrightii* (W. H. Edwards).
See above comments about populations in southern Sierra Nevada.

NORTHERN CHECKERSPOT *Chlosyne palla* (Boisduval)
Update

1) **NORTHERN CHECKERSPOT** *Chlosyne palla palla* (Boisduval)
Emmel, Emmel & Mattoon and Davenport differ on this taxa's standing in southern California. The next subspecies was described in the *SYSTEMATICS* book and what is in southern California was considered that subspecies. Ken Davenport still believes there are two separable populations in Kern County and that one of those is very similar to nominotypical *palla*.

2) **SOUTHERN SIERRA CHECKERSPOT** *Chlosyne palla australomontana* Emmel, Emmel & Mattoon.
Newly described subspecies of the eastern Kern Plateau, ranging southeast in Nine Mile Canyon (Inyo County) south through Walker Pass to Kelso Valley in Kern County. Some individuals from upper Nine Mile Canyon tend toward an obsolescent pattern and resemble *C. acastus neumoeogeni*. It is possible an unrecognized *acastus* subspecies occurs there with *palla*.

SAGEBRUSH CHECKERSPOT *Chlosyne acastus* (W. H. Edwards).
Update:

1) **NEUMOEGEN'S CHECKERSPOT** *Chlosyne acastus neumoeogeni* (Skinner).
Treated as a species in the southern California butterfly book (*Chlosyne neumoeogeni*). Rearing studies by John F. Emmel show that *neumoeogeni* is a subspecies of *C. acastus*.

2) **DEATH VALLEY CHECKERSPOT** *Chlosyne acastus vallismortis* (Johnson).
Treated as a subspecies of the NORTHERN CHECKERSPOT (*Chlosyne palla*) in the Southern California book. John Emmel's rearing studies show this population to be an *acastus* subspecies. See the *SYSTEMATICS* publication for more information.

GABB'S CHECKERSPOT *Chlosyne gabbii* (Behr).
Update:

1) **GABB'S CHECKERSPOT** *Chlosyne gabbii gabbii* (Behr).
This is the subspecies in mainland California, the following subspecies was described in the *Systematics* publication.

2) **DARK GABB'S CHECKERSPOT** *Chlosyne gabbii atrifasciata* Hawks & Emmel.
This new subspecies is darker than mainland *gabbii*. It is limited to Santa Cruz and Anacapa Islands off coast of California.

PEARL CRESCENT *Phyciodes tharos* (Drury)
Update: Emmel, Emmel & Mattoon listed the southeastern California populations as subspecies *distinctus* Bauer in their 1998 state checklist. James A. Scott considered *distinctus* a synonym of *tharos* in a 1994 paper. The 1998 checklist was actually written years earlier. The correct taxonomic view? Undecided. California *tharos* are in the LACM collection.

FIELD CRESCENT *Phyciodes pulchellus pulchellus* (Boisduval).
Update: Popularly long known as *Phyciodes campestris* (Boisduval). Emmel & Emmel viewed southern California material as nominotypical *campestris* (=pulchella=pulchellus=pratensis). Recently shown by several workers to still occur in the San Gabriel Mtns. Populations in the southern Sierra Nevada of Kern County are extremely variable with *pulchella*, *deltarufa* Scott and *montanus* (Behr) phenotypes all common in the region. They appear to be one variable population, not sympatric species.

PHAON CRESCENT *Phyciodes phaon jalapeno* Scott

Update: Described by Scott in *Phyciodes* #10, 1998. Occurs along the Colorado River at Needles in San Bernardino County.

TEXAS CRESCENT *Anthanassa texana texana* (W. H. Edwards).

Update: Unknown for the state in 1973, several strays have been collected in the Providence Mountains and a few other places in southern California since then. Records have been published in annual Season Summaries.

Subfamily Argynniinae:

PACIFIC FRITILLARY *Boloria (Clossiana) epithore sierra* (E. Perkins). (=THE WESTERN MEADOW FRITILLARY)

Update: For many years this taxon was not found in the Greenhorn Mountains of Kern County (found further north in Tulare County Greenhorns), but since 1995, frequently found south of the Tulare County line in Kern County. A 1990 forest fire created more meadow habitats which *sierra* has exploited. It is now a dominant species in the range south to about Tiger Flat.

UNSILVERED FRITILLARY *Speyeria adiastrum* (W. H. Edwards).

Update:

1) **UNSILVERED FRITILLARY** *Speyeria adiastrum atossa* (W. H. Edwards).

Still no captures since 1959. I have examined the last two *atossa* collected that year (one on Mt. Pinos, one near Tehachapi) and interestingly, both were collected by different collectors on June 5th!

2) **CLEMENCE'S FRITILLARY** *Speyeria adiastrum clemencei* (J. A. Comstock).

The status of this butterfly in San Luis Obispo County is open to question. I have heard of no records for *clemencei* from Hi Mountain since the mid-1970's. Drought has been a severe problem in recent years.

CALLIPPE FRITILLARY *Speyeria callippe* (Boisduval).

Update: Emmel & Emmel speculated that there must be a blend zone between the MACARIA FRITILLARY (*S. callippe macaria* (W. H. Edwards)) and COMSTOCK'S FRITILLARY (*S. callippe comstocki* (Gunder)). This was confirmed by Ken Davenport's discovery of intergrades in the Santa Barbara County mountains (=Sierra Madre Mountains and Sierra Madre Road) rimming the south side of the Cuyama Valley – notably so on McPherson Peak and westward on June 28, 1995.

1) **UNSILVERED MACARIA FRITILLARY** *Speyeria callippe laurina* (W. G. Wright).

Treated as a form of *macaria* in 1973. Emmel, Emmel & Mattoon list this as a valid subspecies from the Greenhorn Mountains of Kern and Tulare Counties. Contrary to speculation that *laurina* "blends" into *inornata* W. H. Edwards (= *rupestris* Behr), populations of this mostly *unsilvered* subspecies just to the north in the Sherman Pass region are 100% silvered.

GREAT BASIN FRITILLARY *Speyeria egleis* (Behr).

Update:

1) **EGLEIS FRITILLARY** *Speyeria egleis egleis* (Behr).

Emmel & Emmel speculated in 1973 that *egleis tehachapina* might occur in the southern Sierra Nevada on Owens Peak and in the Greenhorn Mountains. Until 1995 there were no records for *egleis* in the Greenhorns (one sight record from near Baker Ridge (1980s)). Derham Giuliani found typical *egleis* on Owens Peak and Ken Davenport has taken nominotypical *egleis* at the south end of the Kern Plateau and on Sunday Peak in the Greenhorn Mountains (both Kern County). A major forest fire in the Greenhorns in 1990 cleared thick underbrush and an explosion of *egleis* followed (mostly north of the Kern/Tulare County line in the Greenhorns). As the forest recovers, nominotypical *egleis* appears to be becoming more scarce again.

2) **TEHACHAPI FRITILLARY** *Speyeria egleis tehachapina* (J. A. Comstock).

This rare subspecies appears to be in a serious decline. I know of no records for *tehachapina* from the Tehachapi Mountains since 1 August 1998. Its current status in the Piute Mountains is questionable, but there have been some recent records.

Subfamily Heliconiinae:

GULF FRITILLARY *Agraulis vanillae incarnata* (Riley).

Update: Well established in southern California. Usually local and uncommon in cities and towns in the southern San Joaquin Valley. Often placed in the family Heliconiidae.

FAMILY SATYRIDAE (WOOD-NYMPHS, SATYRS and RINGLETS)

CALIFORNIA RINGLET *Coenonympha californica californica* (Westwood).

Update: Frequently as *C. tullia californica*. Experts differ on whether this group is one species or several.

COMMON WOOD-NYMPH *Cercyonis pegala* (Fabricius).

Update: Ken Davenport discovered a population in the Greenhorn Mountains in 1997, barely reaching southern California. It is highly localized. Localities are withheld because of conservation issues.

GREAT BASIN WOOD-NYMPH *Cercyonis sthenele* (Boisduval).

Update: The subspecies *silvestris* (W. H. Edwards) may or may not apply to some west slope populations of this species in the Tehachapi and Greenhorn Mountains.

1) **BEHR'S WOOD-NYMPH** *Cercyonis sthenele behrii* (F. Grinnell).

It is this subspecies, NOT *silvestris* that occurs in most if not all the mountain ranges outside the desert ranges in southern California. See the SYSTEMATICS publication. This subspecies has banded HW, *silvestris* has indistinct scrawling on HW.

2) **MASON'S WOOD-NYMPH** *Cercyonis sthenele masoni* Cross.

This subspecies occurs in many (not necessarily all) of the southern California eastern Mojave Desert mountain ranges.

3) **LITTLE SATYR** *Cercyonis sthenele paulus* (W. H. Edwards).

Subspecies *paulus* is retained on the Southern California list as it occurs on the east slope of the southern Sierra Nevada and in mountain ranges bordering the Owens Valley, Inyo County.

FAMILY DANAIDAE (MILKWEED BUTTERFLIES)

MONARCH BUTTERFLY *Danaus plexippus plexippus* (Linnaeus).

Update: Tagged individuals have shown that *plexippus* often migrates northward in spring by moving inland and following the Sierra Nevada north. Some individuals overwinter in the southern San Joaquin Valley and southern Sierra Nevada canyons.

STRIATED QUEEN *Danaus gilippus thersippus* (Bates).

Update: The previously used name *strigosus* (Bates) is a synonym of *thersippus* (see SYSTEMATICS publication). The species becomes transiently established in the southern Sierra Nevada.

CHECKLIST OF THE BUTTERFLIES AND SKIPPERS OF SOUTHERN CALIFORNIA

The checklist follows the general order given in *A Checklist of the Butterflies and Skippers of California* (1998) by John F. Emmel, Thomas C. Emmel and Sterling O. Mattoon. Names used reflect updated information and may reflect the authors view of what names to use. (Others may choose to follow the Opler and Warren list (2002) for current species names.)

I consider 189 species to be residents or regular strays to southern California and at least 23 more to be rare strays for a regional total of 212 species attributable to the southern California fauna. In cases where more than one subspecies of a species occurs in the region, the species is listed first then those subspecies occurring in southern California listed by letter. Symbols (*) below identify cases of very rare strays or questionable status in the region. The list below considers the 189 species considered to regularly occur in the southern California fauna. Other species are listed separately under “rarely recorded species” or excluded species, often with explanations.

PART I: RESIDENT SPECIES AND REGULAR STRAYS LIST

Family Papilionidae Latreille

Subfamily Papilioninae Latreille

- | | |
|---|--|
| 1. <i>Papilio bairdii bairdii</i> W. H. Edwards | d. <i>i. fordii</i> Comstock & Martin |
| 2. <i>Papilio zelicaon zelicaon</i> Lucas | e. <i>i. martini</i> T. Emmel & J. Emmel |
| 3. <i>Papilio polyxenes</i> Fabricius | f. <i>i. calcicola</i> J. Emmel & Griffin |
| a. <i>p. asterius</i> Stoll * | g. <i>i. pygmaeus</i> J. Emmel, T. Emmel & Griffin |
| b. (<i>p.</i>) <i>coloro</i> W. G. Wright | 5. <i>Papilio cresphontes</i> Cramer |
| 4. <i>Papilio indra</i> Reakirt | 6. <i>Papilio rutulus rutulus</i> Lucas |
| a. <i>i. phyllisae</i> J. Emmel | 7. <i>Papilio eurymedon</i> Lucas |
| b. <i>i. panamintensis</i> J. Emmel | 8. <i>Papilio multicaudatus pusillus</i> Austin & J. Emmel |
| c. <i>i. pergamus</i> Hy. Edwards | 9. <i>Battus philenor</i> (Linnaeus) |
| | a. <i>p. philenor</i> (Linnaeus) |
| | b. <i>p. hirsuta</i> (Skinner) |

Family Pieridae Duponchel

Subfamily Pierinae Duponchel

- | | |
|---|---|
| 10. <i>Neophasia menapia</i> (C. & R. Felder) | 12. <i>Pontia beckerii beckerii</i> (W. H. Edwards) |
| a. <i>m. menapia</i> (C. & R. Felder) | 13. <i>Pontia sisymbrii</i> (Boisduval) |
| b. <i>m. tehachapina</i> J. Emmel, T. Emmel & Mattoon | a. <i>s. sisymbrii</i> (Boisduval) |
| 11. <i>Pontia protodice</i> (Boisduval & Leconte) | b. <i>s. nigravenosa</i> Austin & J. Emmel |
| | 14. <i>Pieris rapae rapae</i> (Linnaeus) |
| | 15. <i>Pieris marginalis venosa</i> Scudder |

Subfamily Anthocharinae Tutt

- 16. *Euchloe ausonides ausonides* (Lucas) See note 1.
- 17. *Euchloe hyantis* (W. H. Edwards)
 - a. *h. hyantis* (W. H. Edwards)
 - b. *h. andrewsi* Martin
 - c. *h. lotta* Beutenmuller
- 18. *Anthocharis cethura* C. & R. Felder
 - a. *c. cethura* C. & R. Felder
 - b. *c. morrisoni* W. H. Edwards
 - c. *c. catalina* Meadows

- d. *c. pima* W. H. Edwards
- e. *c. mojavenensis* J. Emmel, T. Emmel & Mattoon
- f. *c. hadromarmorata* J. Emmel, T. Emmel & Mattoon
- 19. *Anthocharis sara* Lucas
 - a. *s. sara* Lucas
 - b. *s. gunderi* Ingham
- 20. *Anthocharis thoosa thoosa* (Scudder)
- 21. *Anthocharis lanceolata* (Lucas)
 - a. *l. lanceolata* (Lucas)
 - b. *l. australis* (Grinnell)
 - c. *l. desertolimbus* J. Emmel, T. Emmel & Mattoon

Subfamily Coliadinae Swainson

- 22. *Colias eurytheme* Boisduval
- 23. *Colias philodice eriphyle* W. H. Edwards
- 24. *Colias harfordii* Hy. Edwards
- 25. *Zerene eurydice* (Boisduval)

- 26. *Zerene cesonia cesonia* (Stoll)
- 27. *Phoebis sennae marcellina* (Cramer)
- 28. *Phoebis agariithe fisheri* (Hy. Edwards) * See note 2.
- 29. *Eurema mexicana mexicana* (Boisduval)
- 30. *Abaeis nicippe* (Cramer)
- 31. *Nathalis iole* Boisduval

Family Danaidae Duponchel

Subfamily Danainae Duponchel

- 32. *Danaus plexippus plexippus* (Linnaeus)
- 33. *Danaus gilippus thersippus* (Bates)

Family Satyridae Boisduval

Subfamily Satyrinae Boisduval

- 34. *Coenonympha californica californica* Westwood
- 35. *Cercyonis pegala* (Fabricius) Greenhorn Mountains
- 36. *Cercyonis sthenele* (Boisduval)

- a. *s. silvestris* (W. H. Edwards)
- b. *s. behrii* (F. Grinnell)
- c. *s. paulus* (W. H. Edwards)
- d. *s. masoni* Cross
- e. *s. hypoleuca* Hawks & J. Emmel

Family Nymphalidae Swainson

Subfamily Limenitidinae Behr

- 37. *Limenitis archippus obsoleta* (W. H. Edwards)
- 38. *Limenitis lorquini* (Boisduval)
 - a. *l. lorquini* (Boisduval)
 - b. *l. powelli* (Field)
- 39. *Adelpha bredowii* Geyer
 - a. *b. eulalia* (Doubleday & Hewitson)
 - b. *b. californica* (C. & R. Felder)

Subfamily Nymphalinae Swainson

- 40. *Junonia coenia grisea* Austin & J. Emmel

- 41. *Junonia nigrosuffusa* Barnes & McDunnough
- 42. *Vanessa atalanta rubria* (Fruhstorfer)
- 43. *Vanessa cardui* (Linnaeus)
- 44. *Vanessa annabella* (Field)
- 45. *Vanessa virginiensis* (Drury)
- 46. *Polygonia satyrus* (W. H. Edwards)
- 47. *Polygonia gracilis zephyrus* (W. H. Edwards)
- 48. *Polygonia oreas oreas* (W. H. Edwards)
- 49. *Nymphalis milberti subpallida* (Cockerell)
- 50. *Nymphalis californica californica* (Boisduval)
- 51. *Nymphalis antiopa antiopa* (Linnaeus)

Subfamily Melitaeinae Grote

- 52. *Euphydryas chalcedona* (Doubleday)
 - a. *c. chalcedona* (Doubleday)
 - b. *c. nr. olancha* (W. G. Wright)
 - c. *c. corralensis* T. Emmel & J. Emmel
 - d. *c. hennei* J. Scott
 - e. *c. kingstonensis* T. Emmel & J. Emmel
 - f. *c. southern Sierra Nevada population*
- 53. *Euphydryas editha* (Boisduval)
 - a. *e. nr. editha* (Boisduval)
 - b. *e. Walker Pass/Piute Mtns. population*
 - c. *e. quino* (Behr)

- d. *e. insularis* T. Emmel & J. Emmel
- e. *e. luestherae* Murphy & Ehrlich
- f. *e. rubicunda* (Hy. Edwards)
- g. *e. augustina* (W. G. Wright)
- h. *e. ehrlichi* Baughman & Murphy
- 54. *Poladryas arachne monache* (J. A. Comstock)
- 55. *Dymasia dymas imperialis* (Bauer)
- 56. *Chlosyne (Thessalia) leanira* (C. & R. Felder)
 - a. *l. wrightii* (W. H. Edwards)
 - b. *l. alma* (Strecker)
 - c. *l. elegans* Priestaf & J. Emmel
- 57. *Chlosyne lacinia crocale* (W. H. Edwards)

58. *Chlosyne californica* (W. G. Wright)
 59. *Chlosyne palla* (Boisduval)
 a. *p. nr. palla* (Boisduval)
 b. *p. australomontana* J. Emmel, T. Emmel & Mattoon
 60. *Chlosyne acastus* (W. H. Edwards)
 a. *a. neumoegei* (Skinner)
 b. *a. vallismortis* (J. W. Johnson)
 61. *Chlosyne gabbii* (Behr)
 a. *g. gabbii* (Behr)

Subfamily Argynrininae Blanchard

67. *Boloria epithore sierra* (E. Perkins)
 68. *Speyeria adiastra* (W. H. Edwards)
 a. *a. atossa* (W. H. Edwards)
 b. *a. clemencei* (J. A. Comstock)
 69. *Speyeria hydaspe viridicornis* (J. A. Comstock)
 70. *Speyeria callippe* (Boisduval)
 a. *c. macaria* (W. H. Edwards)
 b. *c. laurina* (W. G. Wright)

Subfamily Heliconiinae Swainson

74. *Agraulis vanillae incarnata* (Riley)

- b. *g. atrifasciata* Hawks & J. Emmel
 62. *Phyciodes mylitta mylitta* (W. H. Edwards)
 63. *Phyciodes tharos* (Drury)
 64. *Phyciodes pulchella* (Boisduval)
 a. *p. nr. pulchella* (Boisduval)
 b. *p. southern* Sierra Nevada
 65. *Phyciodes phaon jalapeno* J. Scott
 66. *Anthanassa texana texana* (W. H. Edwards) *

- c. *c. comstocki* (Gunder)
 71. *Speyeria egleis* (Behr)
 a. *e. egleis* (Behr)
 b. *e. tehachapina* (J. A. Comstock)
 72. *Speyeria coronis* (Behr)
 a. *c. coronis* (Behr)
 b. *c. hennei* (Gunder)
 c. *c. semiramis* (W. H. Edwards)
 73. *Euptoieta claudia* (Cramer)

Family Libytheidae Boisduval

75. *Libytheana carinenta streckeri* (Field)

Family Riodininae Grote

Subfamily Riodininae Grote

76. *Apodemia mormo* (C. & R. Felder)
 a. *m. mormo* (C. & R. Felder)
 b. *m. autumnalis* Austin
 c. *m. nr. mormo* coastal segregate
 d. *m. nr. langei* J. A. Comstock
 e. *m. southern* Sierra Nevada segregate
 77. *Apodemia virgulti* (Behr)
 a. *v. virgulti* (Behr)
 b. *v. davenporti* J. Emmel, T. Emmel & Pratt
 c. *v. dialeucoides* J. Emmel, T. Emmel & Pratt
 d. *v. nigrescens* J. Emmel & T. Emmel
 e. *v. arenaria* J. Emmel, T. Emmel & Pratt

- f. *v. mojavelimbus* J. Emmel, T. Emmel & Pratt
 g. *v. peninsularis* J. Emmel, T. Emmel & Pratt
 h. *v. prattii* J. Emmel & T. Emmel
 78. *Apodemia cythera* (W. H. Edwards)
 a. *c. cythera* (W. H. Edwards)
 b. *c. tuolumensis* Opler & Powell
 c. *c. Sierra Madre* Range
 79. *Apodemia mejicanus deserti* Barnes & McDunnough
 80. *Apodemia palmerii palmerii* (W. H. Edwards)
 81. *Calephelis nemesi* (W. H. Edwards)
 a. *n. dammersi* McAlpine
 b. *n. californica* McAlpine
 82. *Calephelis wrighti* Holland

Family Lycaenidae Leach

Subfamily Theclinae Swainson

83. *Habrodais grunus* (Boisduval)
 a. *g. grunus* (Boisduval)
 b. *g. lorquini* Field
 c. *g. pallid* Sierra Nevada east slope population
 84. *Chlorostymon simaethis sarita* (Skinner) *
 85. *Satyrium californica californica* (W. H. Edwards)
 86. *Satyrium sylvinus* (Boisduval)
 a. *s. sylvinus* (Boisduval)
 b. *s. desertorum* (Grinnell)
 c. *s. dryope* (W. H. Edwards)
 87. *Satyrium auretteum* (Boisduval)
 a. *a. auretteum* (Boisduval)
 b. *a. spadix* (Hy. Edwards)

- c. *a. fumosum* J. Emmel & Mattoni
 88. *Satyrium saepium* (Boisduval)
 a. *s. chlorophora* Watson & W. P. Comstock
 b. *s. chalcis* (W. H. Edwards)
 c. *s. subaridum* J. Emmel, T. Emmel & Mattoon
 d. *s. caliginosum* J. Emmel, T. Emmel & Mattoon
 89. *Satyrium tetra* (W. H. Edwards)
 90. *Satyrium behrii behrii* (W. H. Edwards)
 91. *Ministrymon leda* (W. H. Edwards)
 92. *Callophrys (Incisalia) eryphon eryphon* (Boisduval)
 93. *Callophrys (Deciduphagus) augustinus iroides* (Boisduval)
 94. *Callophrys (Deciduphagus) mossii* (Hy. Edwards)
 a. *m. hidakupa* J. Emmel, T. Emmel & Mattoon
 b. *m. doudoroffi* dos Passos
 95. *Callophrys (Deciduphagus) fotis mojavensis* Austin

96. *Callophrys (Callophrys) perplexa* Barnes & Benjamin
 a. *p. perplexa* Barnes & Benjamin
 b. *p. nr. superperplexa* J. Emmel, T. Emmel & Mattoon
97. *Callophrys (Callophrys) comstocki comstocki* Henne
98. *Callophrys (Mitoura) siva* (W. H. Edwards)
 a. *s. siva* (W. H. Edwards)
 b. *s. juniperaria* (J. A. Comstock)
 c. *s. mansfieldi* (Tilden)
99. *Callophrys (Mitoura) loki* (Skinner)
100. *Callophrys (Mitoura) thornei* (J. Brown)
101. *Callophrys (Mitoura) muiri* (Hy. Edwards)
- a. *m. muiri* (Hy. Edwards)
 b. *m.* inner Coast Ranges on junipers
102. *Callophrys (Mitoura) barryi* K. Johnson (San Bernardino Mtns. segregate)
103. *Callophrys (Loranthomitoura) spinetorum spinetorum* (Hewitson)
104. *Atlides halesus estesi* Clench
105. *Strymon melinus pudicus* (Hy. Edwards)
106. *Strymon avalona* (W. G. Wright)
107. *Strymon istapa clenchi* Austin & J. Emmel

Subfamily Lycaeninae Leach

108. *Lycaena (Epidemia) helloides helloides* (Boisduval)
109. *Lycaena gorgon* (Boisduval)
 a. *g. gorgon* (Boisduval)
 b. *g. micropunctata* J. Emmel & Pratt
110. *Lycaena heteronea clara* (Hy. Edwards)

Subfamily Polyommata Swainson

114. *Leptotes marina* (Reakirt)
115. *Brephidium exilis* (Boisduval)
116. *Everes comyntas sissona* (W. G. Wright)
117. *Everes amyntula* (Boisduval)
 a. *a. amyntula* (Boisduval)
 b. *a. nesiotis* J. Emmel & T. Emmel
118. *Celastrina (ladon) echo* (W. H. Edwards)
 a. *e. echo* (W. H. Edwards)
 b. *e. nr. cinerea* (W. H. Edwards)
119. *Glauropsyche lygdamus* (Doubleday)
 a. *l. australis* F. Grinnell
 b. *l. palosverdesensis* E. M. Perkins & J. Emmel
 c. *l. deserticola* Austin & J. Emmel
 d. *l. nr. columbia* (Skinner)
 e. *l. pseudoxerces* T. Emmel & J. Emmel
 f. *l.* east slope southern Sierra Nevada
 g. *l. sabulosa* J. Emmel, T. Emmel & Mattoon
120. *Glauropsyche piasus* (Boisduval)
 a. *p. piasus* (Boisduval)
 b. *p. sagittigera* (C. & R. Felder)
 c. *p. umbrosa* J. Emmel, T. Emmel & Mattoon
 d. *p. excubitus* J. Emmel, T. Emmel & Mattoon
 e. *p. gabrielina* J. Emmel, T. Emmel & Mattoon
121. *Philotes sonorensis* (C. & R. Felder)
 a. *s. sonorensis* (C. & R. Felder)
 b. *s. extincta* Mattoni
 c. *s.* desert edge populations
 d. *s.* San Diego Co. coastal populations
 e. *s.* Sierra Nevada populations
122. *Philotiella speciosa* (Hy. Edwards)
 a. *s. speciosa* (Hy. Edwards)
 b. *s. purissima* Priestaf & J. Emmel
123. *Euphilotes battoides* (Behr)
 a. *b. allyni* (Shields)
 b. *b. panamintensis* Pratt & Emmel
 c. *b. argocyanea* Pratt & J. Emmel
124. *Euphilotes intermedia comstocki* Shields
125. *Euphilotes baueri vernalis* Pratt & J. Emmel
126. *Euphilotes bernardino* (Barnes & McDunnough)
 a. *b. bernardino* (Barnes & McDunnough)
 b. *b. martini* (Mattoni)
- c. *b. inyomontanus* Pratt & J. Emmel
 d. *b. nr. garthi* Mattoni
 e. *b.* Santa Monica Mtns. on E. cinereum
127. *Euphilotes ellisi* (Shields)
 a. *e. euromojavensis* Pratt & J. Emmel
 b. *e. avawatz* Pratt & J. Emmel
128. *Euphilotes enoptes* (Boisduval)
 a. *e. nr. enoptes* (Boisduval)
 b. *e. tildenii* (Langston)
 c. *e. nr. langstoni* (Shields)
 d. *e. cryptorufes* Pratt & J. Emmel
 e. *e. dammersi* (J. A. Comstock & Henne)
 f. *e. opacapulla* Austin
129. *Euphilotes ancilla* (Barnes & McDunnough)
130. *Euphilotes mojave mojave* (Watson & W. P. Comstock)
131. *Euphilotes pallescens elvirae* (Mattoni)
132. *Plebejus melissa paradoxa* (F. H. Chermock)
133. *Plebejus saepiolus* (Boisduval)
 a. *s. aehaja* (Behr)
 b. *s. hilda* (J. & F. Grinnell)
 c. *s. aureolus* J. Emmel, T. Emmel & Mattoon
134. *Plebejus icarioides* (Boisduval)
 a. *i. atascadero* (J. Emmel, T. Emmel & Mattoon)
 b. *i. moroensis* (Sternitzky)
 c. *i. evius* (Boisduval)
 d. *i. santana* (J. Emmel, T. Emmel & Mattoon)
 e. *i. eosierra* (J. Emmel, T. Emmel & Mattoon)
 f. *i. panamintina* (J. Emmel, T. Emmel & Mattoon)
 g. *i. argusmontana* (J. Emmel, T. Emmel & Mattoon)
135. *Plebejus acmon* (Westwood & Hewitson)
 a. *a. acmon* (Westwood & Hewitson)
 b. *a. texana* (Goodpasture)
136. *Plebejus lupini* (Boisduval)
 a. *l. monticola* (Clemence)
 b. *l. chlorina* (Skinner)
 c. *l.* southern Sierra Nevada on *Erigonum umbellatum*
 d. *l. argentata* J. Emmel, T. Emmel & Mattoon
 e. *l.* inner Coast Range in SLO Co.
137. *Plebejus neurona* (Skinner)
138. *Plebejus emigdionis* (F. Grinnell)
139. *Echinargus isola alce* (W. H. Edwards)
140. *Hemiargus ceraunus gyas* (W. H. Edwards)

Superfamily Hesperioidea Latreille

Subfamily Megathyminae J. H. & A. Comstock

141. *Megathymus yuccae* (Boisduval & LeConte)
 a. *y. martini* D. Stallings & Turner
 b. *y. maudae* D. Stallings, Turner & J. Stallings

- c. *y. harbisoni* J. Emmel & T. Emmel
 142. *Agathymus sthephensi* (Skinner)
 143. *Agathymus alliae paiute* Roever
 144. *Agathymus gentryi* Roever

Subfamily Hesperinae Latreille

145. *Nastra julia* (H. A. Freeman)
 146. *Nastra neamathla* (Skinner & R. C. Williams) See note 3.
 147. *Copaeodes aurantiaca* (Hewitson)
 148. *Hylephila phyleus muertovalle* J. Scott
 149. *Pseudocopaeodes eunus* (W. H. Edwards)
 a. *e. eunus* (W. H. Edwards)
 b. *e. flavus* Austin & J. Emmel
 c. *e. alinea* J. Scott
 150. *Hesperia juba* (Scudder)
 151. *Hesperia colorado* (Scudder)
 a. *c. leussleri* Lindsey
 b. *c. tildeni* H. A. Freeman
 c. *c. idaho* (W. H. Edwards)
 d. *c. fall* flying Sierra Nevada/Tehachapi Mtns.
 152. *Hesperia pahaska martini* MacNeill
 153. *Hesperia columbia* (Scudder)
 154. *Hesperia lindseyi* (Holland) southern California segregate
 155. *Polites sabuleti* (Boisduval)

- a. *s. sabuleti* (Boisduval)
 b. *s. chuska* (W. H. Edwards)
 c. *s. channelensis* J. Emmel & T. Emmel
 156. *Polites sonora sonora* (Scudder)
 157. *Polites carus carus* (W. H. Edwards)
 158. *Atalopedes campestris campestris* (Boisduval)
 159. *Ochlodes yuma yuma* (W. H. Edwards)
 160. *Ochlodes sylvanoides* (Boisduval)
 a. *s. sylvanoides* (Boisduval)
 b. *s. catalina* J. Emmel & T. Emmel
 161. *Ochlodes agricola* (Boisduval)
 a. *a. agricola* (Boisduval)
 b. *a. nemorum* (Boisduval)
 c. *a. verus* (W. H. Edwards)
 162. *Poanes melane melane* (W. H. Edwards)
 163. *Euphyes vestris harbisoni* McGuire & Brown
 164. *Lerodea eufala eufala* (W. H. Edwards)
 165. *Calpodus ethlius* (Skinner) *
 166. *Panoquina errans* (Skinner)

Superfamily Pyrginae Burmeister

167. *Epargyreus clarus californicus* MacNeill
 168. *Polygonus leo arizonensis* (Skinner)
 169. *Urbanus proteus* (Linnaeus)
 170. *Thorybes pylades indistinctus* Austin & J. Emmel
 171. *Staphylus ceos* (W. H. Edwards)
 172. *Systasea zampa* (W. H. Edwards)
 173. *Erynnis brizo* (Scudder & Burgess)
 a. *b. lacustra* (W. G. Wright)
 b. *b. burgessi* (Skinner)
 174. *Erynnis proprius* (Scudder & Burgess)
 175. *Erynnis tristis tristis* (Boisduval)
 176. *Erynnis pacuvius* (Lintner)
 a. *p. lilius* (Dyar)
 b. *p. callidus* (Grinnell)
 177. *Erynnis funeralis* (Scudder & Burgess)

178. *Erynnis afranius* (Lintner)
 179. *Erynnis persius* (Scudder)
 180. *Pyrgus ruralis lagunae* J. Scott
 181. *Pyrgus scriptura* (Boisduval)
 a. *s. scriptura* (Boisduval)
 b. *s. apertorum* Austin
 182. *Pyrgus communis* (Grote)
 183. *Pyrgus albescens* Plotz
 184. *Heliopetes ericetorum* (Boisduval)
 185. *Heliopyrgus domicella* (Erichson) See note 4.
 186. *Pholisora catullus* (Fabricius)
 187. *Hesperopsis libya* (Scudder)
 a. *l. libya* (Scudder)
 b. *l. lena* (W. H. Edwards)
 c. *l. joaquina* J. Emmel, T. Emmel & Mattoon
 188. *Hesperopsis alpheus oricus* (W. H. Edwards)
 189. *Hesperopsis graciellae* (MacNeill)

PART II: RARELY RECORDED SPECIES LIST

See earlier discussion in text or review “Rarely recorded or doubtful records” section in Emmel & Emmel (1973) for specific records: Order follows Emmel, Emmel & Mattoon 1998 checklist for the state to facilitate comparing southern California lists with the state list.

Papilionidae:

190. *Battus polydamas* (Linnaeus)
 J. A. Comstock (1927; Butterflies of California) reported a 1924 record from Santa Monica by Dr. Frank Clark. It was believed to be

- a human aided introduction. It is listed here based on the possibility the species may stray northward from mainland Mexico.
 191. *Parnassius clodius baldur* W. H. Edwards

Pieridae:

192. *Ascia howarthi* (Dixey):

193. *Phoebis philea philea* (Linnaeus)

194. *Eurema दौरा* (Godart)
 195. *Eurema boisduvaliana* (C. & R. Felder)
 196. *Eurema (Pyristia) lisa lisa* (Boisduval & LeConte)

197. *Eurema (Pyristia) nise nelphe* (R. Felder)
 198. *Kricogonia lyside* (Godart)

Nymphalidae:

199. *Asterocampa celtis montis* (W. H. Edwards)
 200. *Myscelia cyananthe* (C. & R. Felder).
 Kilian Roever collected a stray in southern Imperial County near the Mexican border.
 201. *Anartia jatrophae luteipicta* (Fruhstorfer)
 202. *Euptoieta hegesia meridiana* (Stichel)
 There are old records. No known recent authentic records.

203. *Dione moneta poeyi* (Butler)
 There is apparently one valid record for southern California.
 204. *Heliconius charithonius vazquezae* W. P. Comstock & F. M. Brown.
 Emmel & Emmel reported a San Diego County sight record and there is an apparent recent sighting from the Los Angeles region.

Lycaenidae:

205. *Plebejus shasta shasta* (W. H. Edwards)

Hesperiidae:

206. *Piruna pirus* (W. H. Edwards)
 207. *Nyctelius nyctelius* (Latreille)
 208. *Epargyreus windi* H. A. Freeman
 Included here based on the likelihood a museum specimen of “*E. exadeus*” from southern California is actually this species. See note under *Epargyreus* “species” in Opler & Warren (2002) checklist.
 209. *Urbanus simplicius* (Stoll)

210. *Urbanus procne* (Linnaeus)
 211. *Cogia calchas* (Herrich-Schaffer)
 212. *Heliopetes laviana* (Hewitson)
 John S. Garth and J. W. Tilden (California Butterflies, 1986) cite the record as three specimens from Joshua Tree National Monument, Riverside County (13 July 1960). Emmel & Emmel (1973) doubt the record is authentic.

PART III: EXCLUDED LIST OF SPECIES

(Because of suspected mislabeling, incorrect identification, questionable status or erroneous information.)

Papilionidae:

Papilio demoleus Linnaeus

Emmel, Emmel & Mattoon reported a single record from the state. The species does not occur in the regions near the state.

Pieridae:

Colias alexandra W. H. Edwards
 Emmel & Emmel cited a possible sight record from Keystone Canyon in the New York Mountains of San Bernardino County.

Ken Davenport has observed several yellow *Colias* in the arid southern Sierra Nevada (Kelso Valley and Bird Spring Pass). It is unclear whether these sightings represent *alexandra* or *harfordii*.

Nymphalidae:

Speyeria zerene zerene (Boisduval)

The species has been included in USGS lists for Kern County. I doubt the validity of the species occurrence there.

Lycaenidae:

Hypaurotis crysalis (W. H. Edwards)
Ministrymon ines (W.H. Edwards)
 Treated by the Emmel's (1973) as a species, now confirmed as a seasonal form of *leda* as they postulated in their book.
Callophrys (Deciduphagus) augustinus nr. annetteae
 Apparently, not in the Providence Mountains as earlier reported. It does occur in the Hualapai Mountains of Mohave County, Arizona just east of the California line. Subspecies *annetteae* is excluded in the Emmel's 1998 checklist.
Xamia xami (Reakirt)
 A female in the AMNH is labeled as from the Providence Mountains,

San Bernardino County, 5 April 1934 by G. H. and J. L. Sperry. Mislabelling is suspected.
Erora quaderna sanfordi dos Passos
 A specimen in the LACM collection is labeled from the Providence Mountains, San Bernardino County, III-22-40 by T. B. Blevins. Mislabelling is suspected. Neither this species nor *X. xami* have been found in that mountain range by others over many years.
Lycaena rubidus (Behr)
 There was a reported record for this species from Monolith, Kern County in the 1950 Season Summary. Extensive collecting in the region has not substantiated the record.

Hesperiidae:

<i>Agathymus comstocki</i> (Harbison)	<i>Epargyreus</i> note in Opler & Warren (2002) checklist.)
<i>Megathymus yuccae navajo</i> Skinner	<i>Urbanus dorantes dorantes</i> (Stoll)
<i>Oarisma garita</i> (Reakirt)	A specimen labeled only "southern California" is doubted as valid by Emmel & Emmel. (There is a northern California record.)
<i>Poanes hobomok</i> (Boisduval & LeConte)	<i>Autochthon cellus</i> (Boisduval & LeConte)
<i>Poanes taxiles</i> (W. H. Edwards)	<i>Thorybes mexicana</i> (Herrich-Schaffer)
<i>Ochlodes pratincola</i> (Boisduval)	<i>Achlyodes thraso tamenund</i> (W. H. Edwards)
Grath & Tilden treated this as a species. Now considered to not exist as based on misidentification of <i>O. sylvanoides</i> or <i>O. agricola</i> . (See Davenport, 2003 & 1998 SYSTEMATICS pg. 21-22.)	<i>Erynnis juvenalis</i> (Fabricius)
<i>Amblyscirtes phylace</i> (W. H. Edwards)	<i>Erynnis icelus</i> (Scudder & Burgess)
<i>Epargyreus exadeus cruza</i> Evans	<i>Celotes nessus</i> W. H. Edwards
A museum specimen so labeled exists. Ray Stanford (pers. comm.) states the specimen needs to be critically examined based on the probability the specimen is actually <i>E. windi</i> H. A. Freeman. (See	This species is excluded until there are actual specimens or photographic evidence. The area along the California side of the Colorado River should be checked closely for this species.
	<i>Pholisora mejicanus</i> (Reakirt)

PART IV: NOTES TO SOUTHERN CALIFORNIA CHECKLIST

1. *E. ausonides* is included as a resident even though there is only one record. Though rare, the species appears to be a breeding resident in SLO County. Future collecting in the area around Cholame should substantiate this.
2. *P. agarithe* is such a rare stray that it could be listed as a rarely recorded species in Part II rather than Part I. It is retained on the checklist since Emmel & Emmel (1973) included it as a member of the southern California fauna.
3. *N. neamathla* was included in the southern California fauna in California Butterflies (1986) by Garth & Tilden. The name is included in the J. Emmel, T. Emmel & Mattoon 1998 state checklist in SYSTEMATICS publication. It is highly probable the species was or may now be a very rare resident along the lower Colorado River (Kilian Roever, pers. comm.). If not, this species would have to be considered of questionable status or a very rare stray.
4. *H. domicella* is retained in the southern California checklist based on its apparent resident status, though it is one of the rarest species in the state. Best known from the Parker Dam area along the Colorado River (J. Scott). Also found in the Sentenac Canyon area in the Anza-Borrego area, San Diego Co. (23 October 1976 by S. K. Dvorak).

ACKNOWLEDGEMENTS

Southern California has been fortunate to have many active lepidopterists who have contributed much to our knowledge of the region. Past workers have included John Adams Comstock who wrote the classic *Butterflies of California* book published in 1927. Other notable workers included Lloyd M. Martin, Chris Henne, Fred Thorne, Jean Gunder, John S. Garth and J. W. Tilden. Those workers and others provided information along with current workers that Thomas C. Emmel and John F. Emmel used in writing *The Butterflies of southern California* published in 1973. That publication was a major contribution to our knowledge of the region and a publication that continues to be very much used to this day.

Thirty-one years have passed and our knowledge continues to progress. John F. Emmel has openly exchanged information with this writer since 1977. The Emmels and Sterling Mattoon continue to take the lead in defining the California fauna and describing new butterflies. George T. Austin has also actively described new taxa which occur in Nevada and eastern California, often with the Emmels. Jim Brock (providing information since 1975), Ray Stanford (the leading authority of species distribution in the West), Robert Langston, (longtime Lep. Soc. Season Summary coordinator and co-worker on county distribution lists), Paul Opler (who sponsored the Kern/Tulare County faunal paper and provided much information), Gordon Pratt (buckwheat butterflies specialist), John Lane (*Mitoura*), Rudi Mattoni and Oakley Shields (*Euphilotes*), Julian Donahue and Brian Harris (both making the LACM collection available for study), Richard P. Meyer, John Pasko, Allen Rubbert (all sharing data) and Robert Allen (SLO County fauna) have all been generous with sharing their knowledge over the years, either personally or through their publications or notes.

And of course, many thanks to Ron Gattelle and Harry Pavulaan for their efforts in publishing this information. *The International Lepidoptera Survey* (TILS) is devoted to open science and the study of butterflies. The individuals mentioned above all deserve our thanks for their tireless work in the field, their work on distributional documentation, describing new taxa and taxonomic work and communicating their findings to all of us either directly (verbal and written communication) or by contributing to or publishing scientific papers and books.